

THE REMONSTRANCE OF M. SCRIBLERUS
THE YOUNGER
WITH THE LORD CHAMBERLAIN.

It hath pleased you (my dear Lord), from time to time, and in the exercise of judicial duties, to recommend to the present managers of our THEATRE methods of reform, which, I make no doubt, are instalments of a wise and, as yet, concealed Project for the Advancement of the Stage. But as a judge passes sentence to small purpose if the judgment remain unexecuted, so the anathema of a Pope, which injures no one, is not a greater absurdity than the dictum of a Censor, which is not accepted. Your Lordship's hands are, without doubt, tied by bad precedents, and the conflicting circumstances of the present; and as I would not have posterity record an only triumph in the epigram, that, Shocked with bare shoulders which delight the eye of your own world, you covered knees which had offended that of ours, so I will here deliver to you (perhaps with more freedom than prudence) my opinion of the greater extent of your duties. And I will venture to declare, that the gradual decay of delicacy and refinement, among some of the men and women of our nation, is in part due to that scrupulous care with which, in the majority of our theatres, the eye of the public is protected from unlawful sights, while its mind is neither preserved from evil, nor its body from danger therein.

In an age, when it is thought sacrilegious to deface an ancient inscription, or clean a mutilated grotesque, I hold it inconsistent, and a reproach to our good sense, that the literature of genuine Comedy should be impudently perverted, in order to gratify the taste of the moderns; and that the interpolations of buffoonery should be palmed off, as the work of men of Wit and Humour, upon audiences unable to distinguish between that which is original and that which has been "restored." I pass over the judgment which hath permitted a ploughman of the last century to carry a short pipe, and a milkmaid (his sister) to talk about her photograph; but in presence of the many new readings and additions, now introduced by clown and pantaloon, into the chief works of a past age, I do protest against the modesty of editors who have a clear right to a share in the honours of applause with the original authors. A play thus embellished should be described in the bills as the joint production of Messrs. Geo. Colman and Co.; or of Mr. Sheridan and others; or of Sir John Vanbrugh (Limited). And I do further protest against the practice of English adapters, who transform the courtesan of another nation into the merry wife and frolicksome widow of ours. Neither hath it yet appeared to me rational for Englishmen, who have outlived the Second Empire, to fight duels at Scarborough. Nor is it seemly for counterfeit men to squeak with women's voices, in scenes, where actors and actresses are boisterous, when they should be only lively; giggle, when they should smile; and, in mimic drawing-rooms, bandy conversation, which might be thought "smart" at College or on the Race-course, but to which the polite world, being wholly ignorant thereof, hath given no name. Although I own that the temptation to sin in this manner is great in the presence of an audience, which, silent under the stroke of Irony and deaf to Satire, is uproarious in its appreciation of a pun, if it be easy to understand; or of a social paradox, provided it be grose; or of a political allusion, if it have a vulgar turn. Indeed, the intellectual character of our dramatic audiences is finely gauged by the Parisian actor. As the Athenian architect, summoned to erect a palace or a villa for his Roman patron, emphasised material effect and grossified ornament, so the French artist before an English crowd, exaggerates gesture, and points delicate indecency with a prurient glance; for in no other way can he secure the attention of a people whose THEATRE subsists by the antics of Burlesque. There are still, however, Frenchmen—as of old there were Athenians who had never seen Rome—rich enough to decline humouring the taste of the British public; and it is to the honour of "French Comedians" that they lately preferred the provincial appreciation of Brussels to the dulness of insular enthusiasm in our capital.

Although I do not accuse you (my dear Lord) of encouraging abuses which arise from the public incapacity to admire or understand, I do charge you with permitting the ministers of a form of religion, foreign to our thought and recent history, to be grotesquely represented upon our Stage. The solemn operations of such men are subjects of contemplation, not of

ridicule, in the eyes of wise and true reformers. Although an English Marquis, of whom your Lordship hath heard, and whom God hath taken, once perpetrated a witticism of the kind in his Chateau of Bagatelle (where, in a private Oratory, in which an honest and royal woman had knelt, the figure of the Virgin was exchanged for a profane statue), there was no malice in the act, nor did the public suffer from it. But that a Spanish priest—at least equal to a Bulgarian Christian—should be even now caricatured at the well-managed *Gaiety*; and that, not long ago, in a certain drunken scene at the *Royalty* in Soho, the priestly garb should have been brought into contempt, is a greater scandal to Protestants than ever it was to the more licentious subjects of the Most Christian King. For indeed, even while Ireland supported the wealth of a State Episcopacy, I have never witnessed an attempt to caricature upon the French Stage the Bishop of *Bullocksmithy*; nor is any priest either of the National Church or of any other Persuasion ever represented upon it—the wholesome example of *Tartuffe* being an exception which proves the rule.

For if our playwrights are permitted to import the follies of the French Stage, they should be bound to imitate what wisdom it may possess and the refinement which is inherent to it. The British public, once brought to comprehend the good sense of others, will arrive in time to think rightly of itself, and, by the exercise of discrimination and sparing applause, may yet lead the most prolific living adapter of successful and sometimes amusing farce, to produce a comedy, or at least the words of a comic opera, which shall be witty, humorous, and original, without outraging good manners, or, even, the English tongue.

As I have thought fit to plead for the public mind, so now on behalf of its body, I beg leave to call your Lordship's serious attention to the state of some of the buildings in which our THEATRE occupies a divided and uncertain home. And I do solemnly affirm that many, if not all, of them are, in one or other particular, so full of defects and abuses, as to call for the inspection of our Sanitary police. The stalled journalist, who too often praises with effusion, where he should damn with force, knows nothing of those parts of a theatre, which, in London, are devoted to the uses of the common people; and a person of your quality (my dear Lord), is always ushered with becoming deference into a private box. But I am of that little world, which in its "petit coin" of the pit, humbled M. Lekaïn with its silence, when the vociferations of the multitude had otherwise gratified his ear; and, the friend of actors and actresses, I have long admired the foresight of that Church, which strikes with Excommunication those, to witness whose triumphs, the people risk health, and court death, in the heights of a poisoned gallery, or the depths of a pestiferous pit.

The design of our theatres is like a labyrinth, in and out of which nobody can get but by long practice, a good memory, and an exhausting patience. Their architecture is one of vaults and cellars with a covering of bandboxes, rather than one of domes and pyramids; and their architects are as exceeding careful in the choice of narrow passages, and entrance-chasms, as their managers in the sober and orderly way of ranging people within them. It hath ever seemed to me that the waiting in a crowd without their doors is, in a man, a proof of folly, and, in a woman, the negation of modesty. The vast improvement of public entertainments, such as the roasting-alive of families in a burning house, or of an Indignation-speech; and of private ones, such as a Hanging at Newgate, ariseth from their being supervised by policemen, among whom the duty of direction is divided. But in our theatres, the guardian of the streets remains within, while the people press outside; and the curse of the tripe-merchant, at the pit-door no more reacheth his ear than doth the scream of the oyster-woman at the gallery-gate. Nothing in the entrances of a French theatre can be compared with those of a London one; nor have I ever seen anything here to equal the dire confusion of persons who force their way into the latter,—except once, when, at the Palace, I witnessed the ladies and gentlemen of the Court struggling, under the guidance of one of your lordship's predecessors, to pay their respects to the Queen; but, with this difference, that St. James only looked the unutterable things which St. Giles, in an honest fashion, saith.

Too true it is, that while the moderns have discovered the way to make life agreeable, when in small numbers at home, no plan hath yet

been proposed to render it bearable, when in large congregations, under a closed and common roof. Your Lordship's recent edict concerning the freedom of gangways, hath removed a row of benches here, and stray chairs there, but it hath not prevented individuals from interposing their upright bodies in the way of the sole retreat from fire or panic; and for this they have sometimes excuse. It is the custom, in the Theatre Royal—and other Houses, for the money-takers at the pit and gallery entrances, to reply affirmatively that there is still room, when all the seats are occupied. There is, then, no alternative except to stand in a gangway, lose a ticket, the value of which, though obtained under mistaken pretences, is never returned; or pay more money. Many of these pits, both old and new theatres, are below the level of the street; and that place, where the gods breathe fumes fitted for another and opposing class of immortals, is attained only after much climbing. It hath pleased God to refrain of late years from visiting our theatres with fire; but, if a panic seized the minds of people assembled in some of them (and especially in those hemmed in by private houses) I do believe that the death of many spectators, and the injury of all, would result therefrom.

And if, in our theatres, there be little means to save life in case of sudden tumult, the means to preserve health, in a calm, are insufficient, useless, or illusory. Will your Lordship inquire whence the occupants at [hiatus in MS.] obtain the air they breathe? In the three last-named theatres the atmosphere of the pit is foul; and that of the third is the foulest of the three. There in one corner of a cellar, a door is left ajar, whence blasts of cold air chill the damp bodies of those nearest it; and while the noxious effluvia of a refreshment-bar is thereby blown towards the stage, the heavy gases which hang over the other parts are kept stagnant, for not even a hole-in-the-wall exists. In most of these underground regions dried throats and restless lungs are partially relieved by beer and spirits; and a woman, who, like "Jo," is always moving on, hath incited *Demos*, in my presence, to quench thirst, and at an exorbitant tariff. Indeed, I cannot but congratulate this age and country that, in our THEATRE, profit or gain, both in the gratification of the eye and of the stomach, is the principal aim of contractors; and to such as these it would be ingratitude not to own that other of our arts are often infinitely indebted.

The Greeks and Romans have not suffered from all the ills which, in a theatre, afflict the more ingenious moderns. I cannot doubt but that the ancients excelled in the arts of theatrical construction; and though I hear and see in many parts of the town, theoretical and practical eulogies of the Gothick manner, which some say is the sole panacea of our structuve genius, I am convinced, in the matter of theatres, that, since the days of *Vitruvius*, no art or science hath progressed less than Architecture. The antient theatres, whose ruins abound in Europe, possessed in common this unique quality: of never intercepting, with columns or obstructions, the view of the proscenium from any single spectator. And besides the fire-resisting nature of their materials they possessed another great advantage over the speculating manager's theatre of the moderns—consisting in the order, conduct, and regard for decency, which the different gradations of spectators enjoyed. Now, on the contrary, *Silenus* is often obliged to confine an unwieldy body and its swollen extremities, within an area of 18 in. by 22 in.; and partly enveloped by the robes of pretty maidens from the country, or wives from town, he sits jaded, but not ill-pleased! Indeed, it hath long seemed to me that, in the majority of our theatres, there is a scandalous wedging together of the sexes, of grown people and children, which is more conducive to public immorality than the short skirts of a ballet-girl, or the false wit of double-entendre; and I commend some of our pits and galleries to your Lordship's private inspection and public conscience: whether they are places to which prudent men should take their daughters or their wives—quite irrespective of poisoned air which must affect the health of all; and of fire which may yet prove (and mark it well my dear Lord) the violent destruction of many helpless people.

The Excavations at Olympia.—The excavations conducted under the direction of the German Government at Olympia were resumed on the 18th inst., having been suspended during the summer heat.

ENGLISH DOMESTIC ARCHITECTURE,
1300.

THE opening chapters of this art in England are necessarily somewhat hazy. Every fact that can be brought from the writers of history bearing upon this subject, which they have touched so lightly, however trivial to the general reader, is of value to the architect, as it gives him fresh insight into the constructive details of buildings of the past, in which so much of beauty has been manifested, that schools and styles have been founded on their characteristics. The dwellings of England probably possessed some of the same features that distinguish the more substantial and enduring public buildings, but the mutations of stormy and turbulent times have left the early history of domestic architecture based only on conjecture. The earliest development of a predilection for building or constructing a dwelling-place is so much a matter of theory, that archaeologists and antiquaries eminent for their research have but briefly indicated the nature of its rise, and passed on to the period when the writings of contemporary historians or the faithful pencil of the illuminator furnish them with solid ground on which to rebuild in imagination the cities of the past. To trace the art from its earliest commencement we should have to search far back indeed. The first attempt of the primitive Britons at architecture would naturally commence with dwellings. From seeking some retreat from the inclemency of the proverbially boisterous climate, exchanging the holes and caverns of the earth to which they are said to have retreated in winter for the leafy groves with which the island abounded, in summer; they passed to erecting small huts, composed of stakes driven into the earth, interwoven with wattles or pliant branches of trees, and covered with green boughs to protect them from the rain. The idea of a dwelling suggested, says Strutt, "their next step might be to plaster the walls over with clay to prevent the penetration of the wind, and to make the dwelling warmer"; and even in that unpolished time we find the Germans not a little proud of procuring such clay as was of a glossy nature, to make the walls withal, and by mixing a variety of colours together they produced a kind of picture on them. The Britons affected a plain white surface in their dwellings, whitewashing the walls with chalk. The next improvement in their habitations was to thatch them with reeds or straw, a better defence against the rain than the boughs could afford. Then they set about more substantial dwellings, making a frame of wood instead of the wattles. In this state were the domestic structures in Britain at the time of the Roman invasion, "all of them built in a circular form, the roof thatched up round like a cone, in the middle of which an aperture was left for the smoke to issue out." There is some mention of a better sort of house, said to have been of stone, and it is known that on the arrival of the Romans quarries were worked, and the houses of the Roman colonists were, though inferior in character and execution, similarly constructed to the villas of their own country. These buildings appear to have been substantially built and of the most solid materials, concrete and stone being employed. Some of our best stone quarries were worked in the fourth century, while in the zenith of the Saxon power buildings of the Roman days were yet standing in the chief towns in England, significantly distinguished in the Saxon dialect from constructions of a later date, as the quarter called the Aldwark at York and the suburb of Southwark in London. The rude attempts at a town made by clustering a few huts soon gave place to the formation of cities by the civilised conquerors. Thus in A.D. 61, the Roman colony of Camulodunum, destroyed by Boadicea, was a "large well-built town, with a temple, statues, a theatre, and other public buildings." London and Verulam were also populous cities. Building was encouraged by the Romans, who were not slow to perceive that as the taste for the arts of peace developed in the British race, a love of luxury and effeminacy took the place of the fiery spirit of the ancient Briton. The new and extended social system required public buildings besides those devoted to religion; but as our inquiry is with Domestic architecture only, we must pass these by with bare mention, as also the wonderful Stonehenge of an earlier period, as erections of a monu-

mental character. The quarries which had supplied the Britons and Romans with materials for rearing these structures ceased to be worked in Saxon times. The houses of the Romans were taken into possession by the invading Saxons, but neither addition nor alteration to these appears to have been made, nor any new building reared by them. The fierce and warlike spirit of that age was opposed to building. The Saxon had still the free and roving tastes which led him to seek materials in the woods and forests, rather than to delve and dig. The hall of wood, covered with a reed thatch, suited his inclination. Hudson Turner, in his well-known work on this subject, classes the dwelling-place of the Saxon "thegne" as "little more than a capacious apartment, which in the daytime was adapted to the patriarchal hospitality of the owner, and formed at night a sort of stable for his servants, to whose rude accommodation their master's was not much superior in an adjoining chamber. The buildings designed for the higher order of nobles were of a more ornamental design; rude carvings and paintings decorated the interior, but outside they presented no imposing appearance, being a collection of separate tenements, rather than a complete and symmetrical structure. That such was the aspect of the abbey, which from the arrangements made for the accommodation of numberless residents and guests we may refer to as a domestic institution, may be seen by reference to a plan of the Abbey of St. Gall."* This abbey, though situated south of the Rhine, was founded and sustained by Englishmen. Receiving, in A.D. 614, a grant from King Sigebert, it was restored or rebuilt by Gozpertus, to whom the Abbot Equinhardus, prefect of the royal buildings under Charlemagne, "well skilled in architecture," gave the precepts and the plan to which we refer. The entire establishment resembles a town composed of isolated houses, with streets running between them, and occupies a space of 430 ft. square. The church is in the centre, and is surrounded by houses and grounds devoted to various religious, educational, hospitable, and domestic purposes. The quest-house, abbot's house, the scholars' house, and doctor's house, with the physic garden hard by, are ranged nearest the centre; then the refectories and dormitories, the scriptorium of the monks with the precious library; outside these, the infirmary and domestic offices; while the stables, forge, workshops, and a complete set of farm offices occupy the outer boundary. Convents in England were similarly designed: clusters of small tenements, surrounded by pleasant gardens. The Saxon, with his "free and joyous" liberty, to which the old chronicles so often allude, seems to have needed the Norman spirit of enterprise and sociality to induce him to arrange his buildings collectively. It is to the Conqueror himself that we owe the foundation and prosperity of many of our cities. The gift of freedom to the fugitive bondsman and other privileges were conferred by him on condition of residence in his burghs for a year and a day, and though little improvement was manifested in the style of the dwelling-houses, it was at this period that the nucleus of many a now famous town was formed.

The first edifices erected in England by the Normans were doubtless their castles, some of which are still left to us, though their lofty towers and gloomy keeps are in ruins. The dwelling of the Norman baron partook in some degree, no doubt, of the character of these fortresses, although one of the earliest remaining examples, Oakham Castle, built by Wakelin de Ferrars, circa 1180, appears from its noble hall and convenient offices better adapted for a feast than a fray. The pure transitional style of the massive Norman merging into the Early English, has been pointed out by an eminent archaeologist. Standing yet in almost its original state, it illustrates the size and decorations of the Anglo-Norman "hall," the usual appendage to the manor, differing in its architectural character as well as in its nature from the castle. The king's house at Southampton, part of which is still to be seen, is a specimen of a dwelling of the latter part of the twelfth century. This building was probably of a quadrangular shape, and contained a "hall," a chapel, several apartments, and a capacious cellar capable of containing 170 tons of wine, but which does not appear to have been of sufficient size, as the butler or "sheriff" was frequently obliged to

rent additional cellars. These apartments and offices were inclosed and isolated from surrounding buildings. This house has a window of unusual design in a tolerably perfect state, with a segmental arch and dripstone over it, with the usual Norman abacus moulding at the impost; this is continued as a string along the wall, though broken in places by later insertions. The window is ornamented interiorly with shafts on the jambs sunk in a square recess in the angle, having capitals sculptured with the foliage of a peculiar but late Norman character, the bases approaching to Early English. Two houses adjoining the walls of Southampton are of yet earlier date; one of these is nearly perfect, and is one of the oldest houses remaining in England. Of other examples, including the house at Christchurch, St. Mary's Guild, Moysey's Hall (Bury St. Edmund's), Boothby Pagnel, Barnack, and others, the Jew's house at Lincoln is the best preserved and the best known of the remains of this period. The most remarkable feature in this last house is the doorway, enriched with ornaments closely corresponding to Bishop Alexander's work in Lincoln Cathedral; the head of the doorway also forms an arch, to carry the fireplace and chimney above. From contemporary writings and illuminations it would appear that the roof was invariably high-pitched, as in many of the old houses in Normandy. The doors are usually lofty, and with ornamented posts and an ornament on the apex of the gable. The lower windows are mostly square-headed, while the upper windows are circular-headed and lofty. The London Assize of 1189, which, with other legal documents illustrating the domestic architecture and appointments of their various times, is printed in its original Latin at the end of Mr. Turner's book, throws much light on the aspect of the London of those days. All the footways of the streets must have been muddy, and bad travelling for foot-passengers; open drains led the drainage by a natural fall from the higher and more level parts of the city to the river. This assize was held in consequence of the frequent fires, owing to so many of the houses being built of wood, and roofed with straw or reeds. To encourage the more general adoption of stone for dwelling-houses, privileges were conceded thus:—

"When two neighbours shall have agreed to build between themselves a stone wall, each shall give a foot and a half of his land, and so they shall construct, at their joint cost, a stone wall 3 ft. thick, and 16 ft. in height, and if they agree they shall make a gutter between them, at their common expense, to carry off the water from their houses; but if they should not agree, either of them may make a gutter to carry off the water dripping from his house on to his own land, except he can convey it into the high street. They may also, if they agree, raise the said wall as high as they please at their joint expense, and if it should happen that one should wish to raise the wall and the other not, it shall be lawful for him who is willing to raise his own part as much as he please, and build upon it at his own cost, and he shall receive the falling water as is aforesaid."

It would appear from this that additional stories were erected on the walls. The question of "ancient lights" is succinctly settled in the following clause:—"If any one shall have windows looking toward the land of a neighbour, and although he and his predecessors have been long possessed of the view of the aforesaid windows, nevertheless his neighbour may lawfully obstruct the view of these windows by building opposite to them on his own ground, as he shall consider most expedient, except he who hath the windows can show any writing whereby his neighbour may not obstruct the view of these windows. Also, if any one should make a pavement in the high street unjustly to the nuisance of the city and of his neighbour, that neighbour may lawfully hinder it by the bailiffs of the city." Though the majority of houses were of wood, some few of the more pretentious were of stone, as in the supplementary decrees of 1212 it is enacted that "all wooden houses which are nearest to the stone houses on Cheap whereby the stone houses may be in peril, shall be securely amended by view of the mayor and sheriffs and good men of the city, or without any exception to whom they may belong, they will be pulled down." The upper or first story, the "solar," was the principal room of the house, and is represented with large and ornamented windows. In some cases, though not generally, houses appear to be two or even three stories high, and ornamented exteriorly with various colours, as

* Tacit. Annal., lib. xiv., c. 10.

* This plan has been modernised, and presented in a popular form by the Rev. E. Willis, and published in the "Archæological Journal," vol. v., p. 89.

may be seen from the chequered walls of the houses represented in illuminations, and also in the Bayeux tapestry the roof and walls are always depicted in different colours, chiefly red and blue, while the prevailing pattern is two colours arranged in chequered parallelograms, giving the appearance of long narrow bricks.

HALF-YEARLY REVIEW OF THE RAILWAY COMPANIES.

LARGE AND COSTLY FURTHER EXTENSIONS.

THE summer half-yearly meetings of the railway companies have just been brought to a close, and a review of the proceedings shows that a very large expenditure is intended to be incurred by most of the leading companies during the current half-year, on still further extensions, in the construction of new lines, and the erection of additional stations and other buildings, for the accommodation of a constantly increasing traffic, which it appears is rapidly going forward on all the several lines, without exception. The expansion of the railway system is proceeding at such a rate that it is difficult to say when and where it will stop, as evidenced by the statements made at the meeting of the London and North-Western Company more especially, from which it appears that for several years to come the shareholders must be prepared to expend a very large amount of capital annually in new works of a varied and extensive character. A striking feature in the reports of almost all the companies is an increase of the traffic receipts of the last half-year, as compared with the corresponding period of 1875, notwithstanding the depression in trade which has characterised the present year.

In the case of the London and North-Western Company, the receipts for the half-year were 4,857,191*l.*, as compared with 4,330,792*l.* in the first half-year of 1875, showing an increase of 26,399*l.* The shareholders granted 1,420,268*l.* for new lines and additional works, 869,143*l.* of which were, under the New Lines and Additional Powers Act, obtained during the present year. Amongst the other items in this intended expenditure, 95,000*l.* are for the new station at Preston; 117,000*l.* to complete the widening of the line from Willesden to Bletchley; 54,000*l.* for widening the Buxton and High Peak line; and 138,835*l.* for additional siding and other accommodation at several stations named. In reference to this intended expenditure, Mr. Herapath raised a discussion, which elicited from the chairman an important statement as to the expansion of the company, and the rapid increase in the population and trade of large towns. Mr. Herapath observed that for several half-years upwards of 1,000,000*l.* of capital had been expended each half-year, not in constructing new lines, but in improving the present system of the company. Last year fully 2,000,000*l.* had been so spent, and in the past half-year there had been between 900,000*l.* and 1,000,000*l.* expended, whilst for the current year over 1,000,000*l.* was estimated to be expended in the same way, which would make another 2,000,000*l.* this year. He asked whether it was necessary for all time to continue spending 2,000,000*l.* annually on capital account in improving the company's system? In reply, the chairman said that the directors were doing as little as they could,—only that which the necessities of the traffic and its growth absolutely required. They could not get a town like Liverpool to develop itself, and then not provide for the town, and the same remark applied to Manchester, Leeds, Birmingham, Wolverhampton, and other great centres of commerce. He was afraid Mr. Herapath had not been to all the company's stations, for if he had he would have seen that, with all they had done, they had not gone far enough. The only limit to their local traffic seemed to be the limit of accommodation they could give. If the country grew and then traffic grew, they would have to find more money than they were asked for to-day. Adverting to the heavy works which have for some time past been in progress at different points, both in this country and Ireland, the engineer in his report says that the retaining walls of the new tunnel at Primrose Hill are nearly complete, and that of the total length of 1,180 yards of the tunnel 724 yards are finished, being more than two-thirds. On the Festiniog Tunnel (on the Betts-y-Coed and Festiniog line), 3,872 yards long, two out of three of the shafts are sunk, and 160 yards of the tunnel complete. At Holyhead, the enlargement of the inner harbour has made rapid progress during the last few months.

The report of the Midland Company stated that the traffic of the half-year showed a gross increase of 117,195*l.*, as compared with the corresponding period of 1875; but that on the mineral traffic there had been a decrease of 72,262*l.*, caused by the strike which lasted for many weeks in the North Derbyshire and South Yorkshire colliery districts, the net increase being therefore only 44,933*l.* The chairman stated at the meeting that the outlay during the half-year on lines open and on works in course of construction, was 1,712,963*l.* During the half-year, 76,000*l.* had been spent on the new locomotive and carriage shops at Derby. Up to the present time the large sum of 281,000*l.* had been laid out on those works, and before they were completed no less than 170,000*l.* more would have to be spent, making altogether 450,000*l.* This was really a prodigious outlay, but it was absolutely necessary. Adverting to the St. Pancras Station and Hotel, he said that it was now entirely completed, and the outlay was at an end. The further outlay of capital during the current half-year was estimated at 1,500,000*l.*, and in the four half-years following, 4,650,000*l.*; making the large total of 6,150,000*l.* In answer to a shareholder, who said he looked with very considerable anxiety upon the large outlay of capital which was taking place, the chairman observed that he was almost astonished at times at the forbearance with which the shareholders of the company responded to the demands which were made upon them for increased capital. The directors were anxious to keep down such expenditure as much as possible, but the shareholders must bear in mind that for the large increasing traffic which they had had in the last few years they must provide accommodation. In reply to a shareholder who desired information as to the purchase by the directors of a large and extensive property in London for dock purposes, the chairman stated that eight acres of very valuable land fronting the River Thames at Poplar, had been purchased, on which a shipping basin and wharf were about to be constructed. The property was an exceedingly valuable one,—an old shipbuilding yard,—and had cost 110,000*l.* This year they had obtained power to make a short branch into it, which would require a further considerable outlay of capital.

The traffic receipts of the Great Northern Company amounted to 1,399,284*l.* for the last half-year as against 1,395,141*l.* last year. The capital expenditure during the half-year had been 958,188*l.*, a large portion of which was on the new lines in Derbyshire, Nottinghamshire, and Yorkshire. The doubling of the two tunnels at London—the Copenhagen tunnel, and that close to King's-cross—was proceeding satisfactorily. One half of the Copenhagen tunnel was completed, and that at King's-cross, nearer to the station, had been commenced, and several shafts put in. Nearly 40,000*l.* had been expended on those tunnels during the half-year. The accounts of the engineer's department showed a reduction in the expenditure of 7,659*l.*, chiefly attributable to the price of rails, chairs, and building materials having been less than in the corresponding period.

The accounts of the Great Western Company show a slight increase of traffic as compared with last year. The engineer reports that the tunnel of the Bewdley and Kidderminster, and Nether-ton and Halesowen Railways has been finished, with the exception of the face at the east end, and that all the piers and abutments of the viaduct crossing the river Stour have been brought up to springing level, and three of the arches tamed. The engineer in charge of the Severn tunnel works reports that the heading has now been driven to a length of 2,540 ft. from the shaft, and is more than 60 ft. under the shoots. Inclusive of the cost of the plant, the expenditure to the present time amounts to 55,448*l.* At the meeting the shareholders passed a vote of 224,185*l.* for additional new works during the current half-year. Amongst the items of this intended expenditure are, carriage-repairing shops at Paddington, 4,870*l.*; new wagon-yard at Swindon, 6,000*l.*; doubling the line between West Drayton and Slough, 10,000*l.*; additional sidings at Exeter, 8,000*l.*; new goods stations at Bath, Bristol, and Cardiff, 27,800*l.*; new passenger stations at Cwmbran and Newport, 32,000*l.*; and new station at Neath, 20,000*l.*

The report of the South-Eastern Company stated that there was an increase in the earnings from all sources, of 19,694*l.* as compared with the corresponding period of last year. The directors nevertheless regretted that great

depression of trade and the long winter had had an effect upon the traffic receipts of the company. The report further stated that the works of the Blackfriars Branch, and of the extension from Greenwich to Maize-hill, were all but complete, and would be opened for traffic very shortly. It added that purchases of property for the further enlargement of the Bricklayers' Arms Station, and in connexion with extension works at other points, were being made. The discussions before the Government Department in reference to the enlargement of the harbour of Boulogne were progressing favourably, and the directors were advised that in all probability a project would be submitted to the French Chambers in January next for definitively dealing with the question.

The depression of trade during the present year has had a serious effect on the merchandise and mineral traffic of the North-Eastern Railway Company, more especially on the last-named traffic, which has fallen off to the extent of 55,000*l.* At the half-yearly meeting the chairman stated that during the half-year they had spent, on existing lines, in works necessary for the public convenience and safety, 396,500*l.*, mainly made up by extension of stations and construction of new sidings. The expenditure on land alone amounted to 109,698*l.* As in the case of all other railway companies, the cost of land was becoming one of the most serious items. There was an item of a very serious character, which had reference to cottages and cabins. The expenditure on these during the half-year, together with block-signal cabins, amounted to 61,000*l.* On new jetties and sidings at the Tyne docks they had spent 12,885*l.* During the half-year some of the heaviest works they had to construct under their Acts of Parliament had been in progress. On the very heavy works crossing Sunderland they had expended 56,000*l.*; on the new station at York and the railways approaching it, all of which were being pushed forward and showed great progress, 84,644*l.*; on the railway and docks at West Hartlepool, 32,000*l.*; and on the line from Castle Eden to Stockton, 64,000*l.* In the course of his remarks the chairman alluded to the enormous amount which the company had recently expended on rolling-stock. Last year they added to their stock 105 new engines, for which 265,000*l.* have been paid. During the past half-year they had spent 76,000*l.*, adding thirty-three new engines, which increased their stock to 1,364. In the course of last year they expended in new wagons as much as 480,000*l.*, and during the past half-year they had spent 134,187*l.* The total expenditure by the company on rolling-stock, up to the end of the half-year, had been close upon 9,000,000*l.*

The London, Chatham, and Dover Company have resolved to spend a large sum in station and other extensions at different points along the line. At the meeting of that company the directors reported that it will be necessary to incur, during the next two or three years, considerable additional expenditure in the provision of further accommodation and material for the growing traffic of the railway. There was no doubt that the income of the company was at present suffering from the want of such outlay. Extensions at several stations on the line had become indispensable, and to secure a punctual and efficient service a large quantity of additional sidings and siding-room at various points must be constructed. The shareholders have confirmed a recommendation of the directors to raise 500,000*l.* additional capital for carrying out a portion of the proposed new works.

The report of the London and Brighton Company stated that the general depression during the past half-year, while it had arrested the rapid progress of the revenue, had not prevented an increase resulting from the general development of traffic. The capital expenditure for the half-year had been 201,871*l.*

The traffic receipts of the Metropolitan for the half-year amount to 240,477*l.*, showing an increase of 17,490*l.* as compared with the corresponding period of last year. The extension from Bishopsgate to Aldgate is being rapidly proceeded with, and is expected to be completed and opened by the 1st of December. The works on the St. John's Wood line, from the Swiss Cottage to Willesden-green, are about to be commenced.

The report of the East London Company stated that the works of the goods junction with the main line of the Great Eastern Company will be at once commenced and completed, as a very large amount of revenue depends upon it.

The Great Eastern Company report that the conversion of their Shoreditch high-level passenger station into a goods station, together with the works in connexion, are about to be carried out. It was stated at the meeting of the North London Company that the dock and other works at Poplar, now in progress, will cost 200,000*l*.

At the meeting of the Manchester and Sheffield Company it transpired that, during the half-year there had been a decrease in the traffic, as compared with the corresponding half-year of 1875 of 33,000*l*. Sir Edward Watkin, the chairman, attributed it in a great measure to the strike in the coal districts of South Yorkshire, which lasted ten weeks. He calculated that the company had lost 50,000*l*. by that "foolish, iniquitous, and unnecessary strike," whilst the workmen themselves lost 100,000*l*., and the employers 200,000*l*., the value of the 500,000 tons of coal which were not got during the strike.

SURVEYORSHIP ITEMS.

Sevenoaks.—Mr. George William Brumell, assistant surveyor for the central district of St. Pancras parish, has been appointed surveyor to the Sevenoaks Local Board of Health.

Stoke-on-Trent.—At a meeting of the Stoke-on-Trent Town Council, on the 21st inst., Mr. Bowen, of Liverpool, was appointed borough surveyor. There were sixty-three applicants, a number of whom had been selected to attend the meeting. The salary is 200*l*. a year.

COST OF RAILWAY MAINTENANCE.

SOME pains have been taken to enable us to lay before our readers a tabular statement showing the particulars of the expenditure, by sixteen of the principal railway companies, in maintaining and renewing their permanent way, stations, buildings, and other works in the engineer's department. The figures are for the half-year ended June, 1876, and have been obtained from the official half-yearly reports of the companies. A number of calculations are added which show the rate of expenditure per mile of line, the mileage being equated to single line; the percentage which the expenditure forms of the actual cost of constructing the lines; and also the proportion of the earnings which was absorbed. The mean averages obtained from the combined figures of these companies may be accepted as fair data for fixing the rate of outlay in this important department of railway working. These may be given as follows:—

<i>Salaries, Office Expenses, and Superintendence.</i>		
Per mile of single line	£3-000	
Percentage of cost of construction	0.19	
Percentage of earnings	2.7	
<i>Permanent Way.</i>		
Per mile of single line	£88-000	
Percentage of cost of construction	4.82	
Percentage of earnings	6.95	
<i>Stations, Buildings, and Works.</i>		
Per mile of single line	£39-000	
Percentage of cost of construction	2.12	
Percentage of earnings	3.07	
<i>Gross Total.</i>		
Per mile of single line	£130-000	
Percentage of cost of construction	7.13	
Percentage of earnings	10.29	

Comparative Statement of the Particulars and Cost of maintaining the Permanent Way and Works of the principal Railway Companies. Half-year ending 30th June, 1876.

Company.	Miles of Single Line maintained.	Capital Cost of Lines Open.	Traffic Receipts.	Salaries and Superintendence.			Permanent Way: Maintenance and Renewals.			Stations, Buildings, Roads, Bridges, &c.			Gross Total.		
				Amount.	Per mile single line.	Per cent. of cost.	Wages.	Materials.	Totals.	Per mile single line.	Per cent. of cost.	Per cent. of earnings.	Amount.	Per mile single line.	Per cent. of cost.
Caledonian	1,198	20,200,588	1,305,693	1,801	2	0.009	13	49,384	54,491	103,875	87	7.44	23,107	23	1.39
Great Eastern	1,307	23,520,922	1,289,303	953	1	0.004	07	47,387	62,161	109,548	84	6.60	24,711	19	1.05
Great Northern	1,012	18,396,143	1,399,484	4,771	5	0.026	33	38,103	67,179	95,282	94	6.61	41,490	41	2.25
Great Southern and Western	632	5,834,822	353,510	894	2	0.017	28	10,838	21,068	51,627	81	14.58	10,614	17	1.82
Great Western	2,979	43,088,497	3,479,549	12,928	4	0.030	37	122,665	217,237	339,902	114	9.77	89,884	30	2.09
Lancashire and Yorkshire	848	23,234,146	1,724,272	3,073	4	0.013	37	35,219	25,000	60,219	71	2.50	48,870	58	2.10
London and Brighton	599	16,303,404	790,466	1,421	2	0.009	18	23,695	20,090	43,785	72	5.46	15,508	26	0.95
London and North-Western	2,727	52,666,450	4,410,923	15,163	6	0.029	34	133,546	98,589	232,135	85	5.26	179,233	62	3.23
London and South-Western	1,108	16,174,789	1,050,655	1,788	2	0.011	37	14,768	21,267	36,035	60	7.84	27,106	24	1.68
Manchester, Sheffield, & Lin.	619	11,848,695	820,499	1,795	3	0.015	22	41,565	40,472	82,037	74	4.39	19,030	37	1.61
Midland	2,947	44,905,197	2,916,965	9,268	4	0.021	31	102,632	117,690	220,322	108	9.10	81,102	45	2.98
Midland Great Western	530	3,436,134	224,858	1,027	2	0.030	40	15,154	18,483	33,637	63	14.96	5,675	11	1.05
North British	1,239	19,755,827	1,064,985	1,804	1	0.009	17	49,082	48,194	97,276	79	9.13	33,580	27	1.70
North-Eastern	2,324	42,825,612	3,142,245	8,560	4	0.020	27	92,900	85,401	178,301	77	5.08	141,296	61	3.30
North Staffordshire	340	5,262,757	309,383	968	3	0.019	31	11,179	18,583	29,762	87	9.02	12,497	36	2.30
South-Eastern	654	17,535,493	898,938	1,514	2	0.009	17	24,976	20,999	45,975	70	5.11	16,293	25	0.81
Totals and Averages	20,063	365,058,746	25,301,924	67,884	3	0.019	27	822,093	937,585	1,759,678	89	6.95	775,605	39	2.12

SOME OLD HOUSES AND THEIR STORIES.

THE HOUSE IN WHICH JOHN LOCKE DIED.

THE year sixteen hundred and thirty-four is memorable in English history as that in which the obnoxious ship-money tax was first imposed on a people already groaning beneath the weight of excessive and illegal taxation. The unpopularity of Charles I. was rapidly spreading, the indignation of Parliament was as rapidly deepening, and the earliest mutterings of that awful storm which swept the Stuarts from their throne pervaded the entire land.

John Locke was then two years old. He was born, as may be remembered, in a thatched house beside the ancient church of a small market town in Somersetshire, called Wrington; eleven miles from Bristol, and a shorter distance from Axbridge. His father, a lawyer and agent, was a man in fairly prosperous circumstances who shared the growing discontent of the country, and in that neat little one-street town at the foot of the Mendip-hills was an important and influential personage.

As little John Locke grew in years and began to wander about the town and through the tall ferns covering the vast heaths on the hill sides of the Mendips, with the elder companions of his childhood, his mind became deeply impressed by all he heard and saw as the great waves of pity, horror, indignation, and rage swept over the land; now from Ireland, now from Scotland, and most frequently from London. The dreadful whisperings of secret horrors instigated by the Queen in Whitehall—the cruel and abominable Star-chamber doings—wrongs done by servile magistrates basking in the light of royal favour and protection, the infliction of ruinous fines for the most trifling and even imaginary offences, the torture and imprisonment of patriotic gentlemen in and out of Parliament, arbitrary exactions of the most aggravating description, these and kindred things raised the swelling waves of public feeling and sent them rolling stormily onward. In Bristol, then, and long after, the second city of the kingdom, the people were terribly excited, and thence the emotion spread to Axbridge and Wrington. Hot controversies sprang up concerning the supposed Divine Right of kings with the consequent wickedness of rebellion, versus the people's right of resistance when sore need was in arms, and, if need be, even to the death. In these Mr. John Locke, we feel sure, took part. And when the time came he was not tardy in exchanging words for blows, the sword for the pen, and went forth to raise men, deserting law-books and ink-horn until happier times should be won, prepared for sternest work wherein life, land, and all men hold dearest were to be staked upon the hazard of a desperate struggle for the country's rightful freedom.

As the chief entrance into Wales, and a station giving its owners the entire command of Somerset, the strongly-fortified city of Bristol, with its wealth of manufactures, shipping, money, and population was a point of the highest possible importance to the king on the one hand, and the Parliament on the other. Harassed by the demands of arrogant, never-satisfied commissioners and pursuivants, driven to the verge of frantic desperation by steadily-increasing imposts, and the utter impossibility of obtaining

redress or relief, the merchants of Bristol were determined to play no mean part in the coming struggle. Civil commotions soon began to assume formidable appearances; the soap-makers determined to abandon trade rather than pay a duty of 4*l*. per ton on soap; the brewers were resolved to cease brewing rather than take out the hitherto unheard-of licences at a cost of 40 marks each per annum. Richard Aldworth, as mayor of the city, his aldermen, and the city guilds, terribly perplexed, and with much dread and fear in their hearts, prepared to meet the coming troubles. Forts were erected, the ancient castle, and the double line of the city walls were repaired and strengthened; tall, strong towers arose on the hills of Brandon and St. Michael; cannon, and unusually large pieces of ordnance, were mounted and arranged for use against possible besiegers. The gaily-attired city train bands, with their floating feathers, gay doublets, gleaming pikes, and clumsy muskets, marched to and fro through the streets, each looking like a captain, so well was he armed and attired. Sightseers came in from the outlying towns and villages, full of wonder and excitement, and amongst them doubtless Mr. Locke, with his poor, delicate, pale-faced, intelligent lad, John, then ten years old,—for all these things were in 1642.

But the civic authorities were divided even amongst themselves, although by far the greater proportion of the citizens were hostile to the king. Rumours came in from time to time which increased their uncertainty. Now the Royal cause looked strongest, now that of the Houses of Parliament; the advantages leaned now this way, now that; it was hard for prudent men, with a just sense of their responsibilities, to decide in favour of one or the other. While they were thus wavering, a new element sprang up to bring about a final decision. A procession of strong-minded, warm-hearted, patriotic ladies, headed by the wife of the mayor, broke into the council-chamber and prayed them earnestly and fervently to proclaim against the king, and they prevailed. The Earl of Essex, who held a great military reputation, had been chosen to head the forces opposed to Charles, and when he marched from Gloucester to Bristol, thanks to these ladies, he found the gates opened for his admission, which were afterwards closed for his protection.

But Essex disgusted the sober citizens and traders. He and his officers plunged into the unwarlike delights of feasting, drinking, and dancing, disgracing the place with their broils and debauchery, and weakening the cause they were embarked in, just when it most needed strengthening and support. So it happened that, on the 16th of February, in 1643, the Parliament sent Colonel Nathaniel Fiennes to depose the Earl from his command, and hold him in close confinement until his conduct had been strictly investigated. But even Fiennes suffered the enemy to approach unperceived, and nearly lost the town through their treachery.

John Locke's father was then serving the Parliament as captain of a troop he had raised in Wrington, and was doubtless with his family in Bristol when Prince Rupert came by secret marches to plan a terrible surprise. He had received private messages from certain royalist citizens who had matured a plan for the massacre of their fellow-citizens by night, and the

admission of the king's forces, which was discovered only at the very moment when the bells of three churches near the walls were to be suddenly tolled as the signal for its execution. So awful had been the (doubtless exaggerated) stories industriously spread abroad concerning the cruel outrages and tortures inflicted by the savage Irish and German troops in the pay of Prince Rupert on men, women, and children, that we can readily imagine how the wan face of poor little John Locke grew still more white when one morning, on the 8th of March, he heard his excited father describing the danger they, in the dead of night, had so unconsciously escaped, and heard his mother's grateful thanks given to a merciful God for the miracle of their safety.

Tracing the fierce, hot progress of the siege which ensued, we remember how the leaders of the detected conspirators suffered, and paid the last barbarous and horrible penalties of their crime in being hanged, and, whilst still alive, drawn and quartered, before the Nag's Head tavern in Wine-street. How, on the 23rd of July, Bristol was compelled, by foes without and traitors within the gates, to capitulate, but did so on the most favourable and honourable conditions, which Prince Rupert granted and most dishonourably violated. The soldiers of the Parliament, instead of marching out with shouldered pikes and muskets, their flags bravely flying, were driven forth stripped of arms, money, and even clothes,—amongst them, as we may fairly presume, being Captain Locke, with his frightened wife and children, who, in some way or other, through hardships, sufferings, and dangers, contrived to reach London.

The Roundheads were no longer jubilant and hopeful; so far all the advantages seemed to be won by the Royalists, who were victorious in the north and in the west, and now held Bristol. The king's army began to grow, that of the Parliament to diminish. Those who had remained doubtful decided for the more hopeful cause, and many who had decided for the other bitterly blamed their rashness. London was in a state of terror. Riots arose, plots were feared, dissension and discontent abounded, and in London there were hurried preparations to endure a siege.

About this time, or soon after, John became one of the scholars who had the privilege of being educated and prepared for the University in that famous "publique school for grammar, rhetoric, poëtrie, and for the Latin and Greek languages," now called Westminster School. It was at that time no easy task to secure admission thereto, and Captain Locke must have commanded considerable influence in securing the same. For the first year John was probationer or commoner. How the weakly boy fared in the rude sports and exercises of the sturdy Westminster scholars, and what triumphs the ambitious genius won in learning to compensate for defeat in athletic contests, we can fancy without much help from imagination. Whether he played in the old Greek dramas which Queen Elizabeth commanded that the boys should play every year at Christmas, or whether the Puritans suppressed these, as they did other plays, we have not ascertained. His laughter blended in the roar which arose at the tossing of the pancake, but there was little chance of his being the boy to catch it, but his pale face flushed with pride when the glorious day of a crowning triumph came, and he was borne three times round the precincts of the school amidst a shouting and din of congratulations which aroused half Westminster to share the excitement.

From Westminster John Locke went to Oxford, where in Christ Church College his superior abilities soon gave him prominence. In 1655 he obtained his degree of B.A., he being then twenty-three years of age, and three years after he appended to his name the honourable distinction of M.A. But Locke was greatly dissatisfied with the chaotic state learning was then in, and the unprofitable directions it was taking. It irritated him to see students growing bewildered amongst mere verbal subtleties, and he protested strongly against the Aristotelian philosophy as fanciful and practically useless, as tending to convert students into wrangling disputants rather than sound thinkers. Despite its wonderful comprehensiveness, and the vast reputation it had for so many centuries enjoyed, he showed how unfruitful this system of philosophy had been, and attacked it with all the weapons in his armoury; tracing to it many faults in the exercise and training of the mental faculties whereby men were kept in ignorance and error all their lives. It was a somewhat bold thing to do, for new

doctrines in philosophy were regarded almost as suspiciously as were new doctrines in religion, and "the imputation of novelty was a terrible charge amongst those who judged men's heads as they did their perukes, by the fashion."

It was now time that Locke should select his future calling or profession. His father had determined that he should be a physician, and a physician he consequently became, commencing practice in Oxford.

The physician of that day was an odd mixture of science and quackery, learning and superstitious ignorance. His profession was, however, one whereby poor men rapidly grew rich, and Mr. Locke, senior, was wise in his generation when he selected it for his son's following. Dr. Baldwin Hamme tells us how in 1644 he knew Dr. Robert Wright, who, although he had been in London only three years, pocketed a thousand broad pieces in the course of the year, and he, moreover, tells how on one occasion he himself received thirty-six broad pieces in gold as a single fee from a sick Puritan, who would have given him a much larger sum if he had not declined to receive it. But it was a profession absurd in its customs, ridiculous in the extravagance of its pretensions, eccentric in dress, and its professors, conscious of much ignorance, concealed it under an assumption of something mysterious and unearthly in the profundity of their wisdom. The huge wig and the gold-headed cane were its chief outer signs, on the strength of which many an ignorant dunce went about torturing and slaying his poor helpless fellow-creatures with perfect impunity. Alchemy, magic, and astrology in the minds of the ignorant were still associated with the practice of medicine, and most of its professors adhered to superstitious and absurd delusions fully justifying such associations. They blundered tragically in their ignorance of drugs, for chemistry was then and, medicinally, for long after, in its infancy, and were as careless in administering them as if they were things of the most harmless and impotent character. To this the learned John Seldon referred when he wrote:—"If a man was rich, and the whole college of physicians were sent to him to administer to him severally, haply, so long as they observed the rules of art, he might recover. But if one of them had a great deal of scammony by him, he must put off that; therefore will he prescribe scammony; another had a great deal of rhubarb, and he must put off that; therefore he prescribes rhubarb; and they would certainly kill the man."

A profession at this feeble stage of its development could not be expected to hold fast a man like John Locke, a conscientious, earnest, great, and high-minded man, who would not condescend to support unreal pretensions or disguise ignorance beneath the assumption of mysterious knowledge. He very soon ceased to be a physician, and accepted the post of secretary to Sir William Swan, with whom, in 1664, he visited Germany. Troublous times were then once again threatening the peace of England, and envoys extraordinary were being despatched by King Charles II. in various directions. Of these Sir William Swan was one, and he was sent forth to visit the elector of Brandenburg and other princes of the German Empire on a secret mission. There are some amusing and interesting letters written by Locke on what he saw and heard in Germany at this time, which were published by Lord King.

In the following year Locke returned to Oxford, and was tempted by an offer of considerable preferment in the Irish Church to take orders. But on precisely that ground which must have influenced him in abandoning the practice of medicine, he ultimately declined this opportunity of rising to wealth and distinction. In reply to the friend who obtained the offer for him, he said, "I believe you think me too proud to undertake anything wherein I should acquit myself but unworthily. I am sure I cannot content myself with being undermost, possibly the middle-most of my profession, and you will allow, on consideration, care is to be taken not to engage in a calling wherein, if one chance to be a bungler, there is no retreat." About the same time, "through fate or fortune," as he said, he declined with hesitation an appointment in the suite of the English Ambassador to Spain.

Thrown back upon his old profession, Locke resumed fresh studies in connexion with it, and worked hard for its improvement, when a chance enabled him finally to abandon it. The learned and eloquent Lord Ashley Cooper being advised to drink the mineral waters at Acton for an abscess

in his breast, wrote to a physician at Oxford to provide a quantity of that water for his use. Arriving in the city, he found Mr. John Locke acting for the physician he had written to during that physician's absence, and was so pleased with the urbanity of the substitute's manners, the superiority of his understanding, and the sincerity of his pretensions, that he soon regarded him with feelings of admiration and friendship, and finally invited him to abandon a distasteful profession and take up his abode with him.

Lord Ashley Cooper, in his younger days, had himself won a distinguished position in Exeter College, Oxford. He delighted in philosophical studies and abstruse speculations. The greatest geniuses of the age were his constant friends and companions. He had fought with Captain Locke on the side of the Parliament, although he had been one of those who were most active in bringing about the Restoration when that step seemed to him the best and most desperately necessary. Such a man could not but appreciate another whose tastes and powers were so near akin to his own, and the friendship thus commenced speedily ripened into one of the deepest sincerity and warmth. When he became Earl Shaftesbury and Lord High Chancellor of England, Locke shared his good fortune, and was made Secretary of the Presentations.

Lord Shaftesbury as an active political leader was in the thick of all the fierce, hot Parliamentary struggles of his day, seeking power, and delighting in its exercise; but he was by no means the unscrupulous and selfishly ambitious man his enemies have delighted in painting. At Oxford, surrounded and admired by an enlightened circle, Locke had ceased to take any active interest in political questions, and devoted himself exclusively to scientific and philosophical pursuits. The most eminent physicians of Oxford, the famous Mr. Boyle, who did so much for chemistry and mechanical science, with many other learned men, were his most intimate friends there, and it must have been with some regret that he followed his new patron to the luxurious leisure of Sunning-hill, Wells, and afterwards to Exeter House, in the Strand, wherein he formed the scheme of his now famous essay on "The Conduct of the Understanding." Wandering along the pleasant gardens and terraces overlooking the Thames, Locke may have thought of the lines in which Spenser, referring to the same mansion, wrote:—

"Next whereunto there stands a stately place,
Where oft I gayn'd gifts and goodly grace
Of that great lord which therein wont to dwell."

The intimacy he enjoyed with the Earl brought with it a variety of occupations which prevented the carrying out of the plan he had carefully devised, the education of his patron's son largely occupying his time. Locke had never from his childhood enjoyed robust health, and at length a severe attack of asthma induced him to seek relief in the South of France. In 1675 he left England for Calais, and by short stages proceeded slowly thence to Montpellier, where he became acquainted with the Earl of Pembroke. He afterwards went to Paris, where he formed a friendship with the learned anatomist, Guenellon, of Amsterdam. In 1679 he received intelligence of the Earl of Shaftesbury's reinstatement at Court, and a letter from him urging his return, politics having assumed so difficult and dangerous an aspect that the advice of a wise and prudent friend assumed high importance.

The last years of the Merry Monarch's reign were closing in shame, infamy, and turbulent outbreaks of popular feeling, when the Duke of York, afterwards James II., at length obtained the dismissal of the Earl of Shaftesbury, the enemy who had persistently striven to prevent his succession. Some of the Duke's creatures falsely charged the Earl with perjury, and he was tried for that offence, but the gleeful hopes of his persecutors were vain; the daring jury acquitted him. Dryden was one of those who embittered the Earl's misfortunes by scathing mockery. His satire of "Absalom and Achitophel" lashed the fallen minister with a severity which he felt deeply and resented indignantly. The Earl, however, as Governor of the Charter House, none the less readily gave Dryden's son the nomination to a scholarship, and Dryden, in the next edition of his satiric poem, speaking of the Earl as Lord Chancellor, penitently returned the compliment by adding the following lines:—

"In Israel's court ne'er sat an Abethdin
With more discerning eyes, or hands more clean,
Unbribed, unsought, the wretched to redress,
Swift of despatch, and easy of access."

When the great Earl was driven out of the country to seek refuge in Holland, John Locke, ever steadfast and faithful to his friend and patron, went with him, content to spend the rest of his days in complete retirement from friends, country, and relatives. In January, 1683, the Earl of Shaftesbury died in exile, and two years after, amidst "inexpressible luxury and profaneness, gaming, and all dissoluteness, and, as it were, total forgetfulness of God," died King Charles II.

James II. carried his hatred beyond the grave, and being unable to wreak it upon the dead earl, kept it in reserve for those who had been the deceased statesman's dearest friends. Mr. Penn wrote to Locke, offering to sue for him with the new monarch for forgiveness. Locke replied gratefully, but with dignity. He was guilty of no offence against the king; there was consequently nothing to be forgiven, and to accept pardon would imply a confession of guiltiness, which, in all honesty and truthfulness, he could never make. This increased the king's hatred of him, and when reports reached England that the English and Scotch exiles in Holland were plotting an invasion of the kingdom, with Argyll and Monmouth at their head, although there was no evidence to show that Locke had participated in their rebellious scheme, yet his name figured last on the list of those whose apprehension was demanded of the Louvestein faction then holding Amsterdam. The innocence of Locke was so well known in that city of commerce that the chief magistrate, had he dared, would have indignantly declined to give him up. All he could do for innocence he did. Locke was warned to hide himself, with the understanding that so long as his presence could be kept unknown no real attempt would be made for his discovery. The friend he had won in France, Guenellon, now proved his truthfulness. He gave him a safe refuge in his house, from which he never ventured until the blackness of night overspread the deserted streets. When the canals intersecting the town in every direction gleamed dimly, and the great docks and warehouses, and the crowd of clumsy coasters and

Rhine vessels rested dark and still along the booms in front of the overhanging houses, then, all eye and ear, in his painful dread of spies, knowing that he took his life in his hand,—disguised and carefully shunning observation,—the great English philosopher stole watchfully forth, like a thief in the night, to take the air. In his secret retirement, however, he continued to write. In 1687 appeared an abridgment of his great unpublished work on the "Understanding," in French, and shortly after a Latin letter on "Toleration,"—of all subjects that which in this country was then least understood or cared for,—with "A New Method of making Commonplace Books." About the same time the evil government of the second James bore its evil fruit in another great, but happily bloodless, revolution, and Locke, joyously hearing the news, came boldly forth into the light of day, bade his generous friend a grateful adieu, and sailed back to his own dear land. His friends at the court of William of Orange appointed him Commissioner of Appeals, and would have made him envoy to the elector of Brandenburg, had he not preferred the smaller income of his former office, with more time for studious labour of love in the retirement of his home and the society of the dear friends from whom he had so long been separated. Amongst those friends were Sir Francis Masham and his blue-stocking lady, his second wife, the learned daughter of a learned father, Dr. Ralph Cudworth, author of "The Intellectual System."

At this period Waltham Forest, which had anciently enshrouded the entire county of Essex, and has now dwindled down to Epping Forest, retained much of its former grandeur and extent.

There, in the midst of beautiful undulating woodland scenery, which belonged more or less intimately to that fine old forest, shut in by groups of trees vast in age and proportions, stood the old manor-house of Otes, Sir Francis Masham's seat. Partially embattled and ivy-grown, its walls enriched by the mellow hues wherewith time delights in painting sturdy brick and stone, with the additions and alterations of several generations conspicuously traceable, both within and without it, this snug, quaint, old roomy mansion had charms of a picturesque and interesting kind peculiarly its own. But its memory is preserved now, some thirty or more years after it has been taken down, exclusively by stories belonging to it as the home of John Locke during the last fourteen years of his life, and as the house wherein he died. In London, where he enjoyed the continued attention of the greatest and most learned men in the kingdom, and was constantly visited by the Earl of Pembroke and the Earl of Peterborough, with both of whom he lived on terms of the closest intimacy, Locke struggled against the disease which was slowly killing him with much difficulty and suffering. At Otes, where the air was purer and softer, his life was more peaceful and endurable. Therefore, two years after his return to England, he resolved, at the solicitation of Sir Francis and his lady, to make their pleasant manor-house his constant abode for the remainder of his days.



Otes, the Seat of Sir Francis Masham.—John Locke's last Retreat.

Notwithstanding this, the Government, to mark its sense of his national services to the cause of learning, and his valuable practical essays on commercial subjects, appointed him a member of the Council of Trade, with the customary stipend of 1,000*l.* per annum. He held the post two months, and then wrote to the Lord Keeper Somers pleading for dismissal, on the ground that the craziness of his body so ill seconded the inclination he had to serve his Majesty. He was urged in vain to retain the post, and with reluctance was allowed to abandon it. In his letter to Lord Somers he said:—

"I should not trouble you with an account of the prevailing decays of an old pair of lungs, were it not my duty to take care his Majesty should not be disappointed, and, therefore, that he lay not any expectation on that which, to my great misfortune, every way, I find, would certainly fail him, and I must beg your lordship, for the interest of the public, to prevail with his Majesty to think on somebody else, since I do not only fear, but am sure, my broken health will never permit me to accept the great honour his Majesty meant me. As it would be unpardonable to betray the King's business by undertaking what I should be unable to go through, so it would be great madness to put myself out of the reach of my friends during the small time I am to linger in this world, only to die a little more rich, or a little more advanced. He must have a heart strangely touched with wealth, or honours, who at my age, and labouring for breath, can find any great relish for either of them."

At Otes, however, he continued to work. In 1695 appeared his "Reasonableness of

Christianity," and soon after his "Commentary on the Apostolic Epistles."

In the well-stocked library of the old mansion he loved to sit and converse quietly with his friends, while through the open windows came the glowing sunshine, the soft perfumed wind of summer, the rustle of leaves, and the songs of birds. By the blazing logs of the huge hearth when cold and frost came with stormy winds, in that same room, curtained and closed and warm, with that love of lingering amongst memories of early days which belong to age and the consciousness of rapidly approaching death, he would tell the stories we have been recalling and partially guessing at, of the great civil war in which his father fought, of the breezy hill-sides on which he wandered as a child, of his experience at Oxford, of his troubles and misfortunes in Holland. Lady Masham, with the most tender sisterly kindness, devoted all her time to his care, surrounding him with every comfort she could command, solicitously careful to preserve him from every influence which might injure his feeble health or lessen his tranquillity.

Once more spring came, with its clear blue sky and budding leaves, and as it warmed and blossomed into summer the dying philosopher knew it was the last he should ever see on earth. On the 1st of June, 1704, he wrote to Mr. King as follows:—

"This comfortable and usually restorative season of the year has no effect upon me for the better; on the contrary, my shortness of breath and uneasiness every day increase. My stomach, without any visible cause, sensibly decays, so that all appearances concur to warn me that the dissolution of this cottage is not far off."

As he grew weaker and weaker, it was still his delight to be carried into that dear old library to spend the hours in his favourite easy-chair, looking upon the summer scene outspread before him, listening to the voice of that loving, loveable, gentle, and true-hearted blue-stocking. And so the days shortened and the air grew chilly, and the windows and curtains once again were closed, and it

was on the 27th day of October. Her ladyship, not discovering him as usual in his favourite seat in the library, went sadly to his bedside, where she found him patient and resigned, too weak to rise, waiting for the end. The day wore mournfully on until the time came for evening devotions. He particularly desired that in their prayers they would specially remember him, and, for his gratification, when the solemn twilight settled down, the family and servants gathered about his bed for the performance of their usual devotional duties. From that poor, pale, wasted face, the thoughtful eyes calmly looked through the gathering shadows upon familiar faces, seen for the last time, and for the last time John Locke heard the sounds of familiar voices, awe-subdued by the thought of his passing away. "My work is almost at an end," said he, "and I thank God for it."

We take another and a parting glance at John Locke. He had insisted upon being once more carried into the library, and placed in his favourite seat. The room was endeared to him in many ways, and he had desired that his eyes should rest upon it just before they closed for ever. Lady Masham sat near him reading the Psalms to herself. He faintly desires her to read aloud. She obeys tearfully, and presently he signs that she shall cease doing so. She again obeys. A few minutes elapse; then is heard a long, low, quivering sigh, and from the body of one of the very few truly great thinkers the world has ever known the last breath of life oozes quietly away. He died on the 28th of October, 1704, at about three o'clock in the afternoon.

THE CONTRACTORS AND THE PARIS EXHIBITION OF 1878.

PROVISION FOR WORKMEN.

THE Commissioners last week arranged their bargains with the contractors for the iron-work to be employed in the two great machine galleries of the Exhibition building, the Creusot factory undertaking the work on the side of the Avenue de Suffren, and the Fives-Lille factory for the side of the Avenue de la Bourdonnais. These two firms must furnish the material, and terminate its erection within twelve months from the day of the command, that is to say, Thursday, September 21st. The work of erection to commence in six months time. The total cost of each of these two bargains amounts to 1,800,000 francs (72,000*l.*). Here are the prices which the Commissioners have agreed to give for the material:—Castings for columns, pipes, &c., 30 centimes the kilogramme (about 2*lb.*); iron and sheet-iron for the glass cases, 68 centimes; ordinary iron, 55 centimes. In case of delay in the execution of the works, these prices remain thus fixed:—Castings for columns, pipes, &c., 28 centimes; sheet-iron for the glass cases, 64*5* millèmes; ordinary iron, 52 centimes.

From the nature of the soil of the Champ de Mars, which, in the course of digging for the drains, was found to consist of ordinary broken rubbish, utterly deficient in vegetable soil, it was thought necessary, in view of the great feature that will be made of the surrounding gardens, that a quantity of earth should be brought to the spot. This, on account of its great expense, created at first some apprehension; but at the same meeting of the Commission at which the contracts for the iron were arranged, a treaty was made with Messrs. Alasseur & Lacourrière, contractors for the Avenue de l'Opéra, the terms of which they engaged to bring 75,000 cubic metres of soil to the spot, at a cost of 20 centimes per cubic metre.

On Friday, the 22nd, the Commission sat again, and in the course of their proceedings adjudged to M. Rigollet a fourth part of the metallic constructions for the interior galleries. The price of the adjudication was 1,330,000 francs (53,200*l.*). The contractor, however, has consented to a reduction of 3 per cent. All the expense of octroi, placing, erection, and painting with three coats, remains at his charge.

M. Krantz has organised the medical service, which will consist of one head surgeon, two under ones, and two hospital assistants. All workmen injured on the works will receive gratuitous advice and assistance either at the hospital or at their own homes, as the head surgeon may advise, and when injuries received disable a man for life, he will receive half his salary during one year. When married workmen, or those having families to assist, are killed on the works or die from injuries received, or illness caused by the work, their wives or families can claim an indemnity of 600 francs. This can be increased by a special decision of the minister, according to the position and wants of the victims and their families. Workmen injured while in a state of drunkenness will only receive medical help. When from any cause the work cannot be proceeded with, the workmen engaged will receive half their salaries.

MOVEMENT IN INDIA.

THE "Prince of Wales Memorial Fund Committee" of Cawnpore have determined to appropriate the sums subscribed by the native gentry of that station to some charitable purpose. It has been resolved that of the amount already realised, 8,000 rupees shall be devoted to the erection of a hospital, in addition to the subscriptions from other sources for the same purpose, and that the remainder be set apart for the formation of a public library. Application has been made to the Government for the grant of a site for the hospital.

The Government of Madras have forwarded to the Government of India their scheme for separating the offices of Chief Engineer and Secretary to the Department of Public Works. General Walker retains the post of chief engineer. Mr. Thorogood, the new superintendent of the harbour works at Madras, has arrived out, and the local journals express a hope that he will soon make his presence felt. They say that the Madras Government and the Government of India seem to be almost powerless in the matter, the control of the works having been vested in the India Office, London. The latest

development has been the setting up of a cement manufactory, which is expected to turn out about fifty tons a day.

The fund for raising a statue to Sir William Muir, at Benares, already amounts to 8,676 rupees. It was only started a fortnight before the mail left. Half of the amount was subscribed by the Maharajah of Benares and the Nawab of Rampoor, and a fourth of the remaining half by the Maharajah of Vizianagram.

The Sutej Bridge, consisting of fifty-eight piers, has had three of them washed away. The smaller Beas Bridge has been entirely destroyed by the floods, and the towns of Jacobabad and Shikarpore are said to be threatened with total destruction by the rising waters of the Indus.

The district engineer of South Canara has reported the destruction of a couple of bridges by the roots of trees. He says:—"On this coast nothing short of the uprooting of all trees that possess lateral roots, growing within fifty yards of bridges, will save further destruction of this sort, for the made earth of embankments and bridge-backing proves genial to roots, and the usual masonry (laterite), from its clayey nature, offers almost as great attractions, and not very much more resistance to their growth."

Captain Newmarch, R.E., Executive Engineer, is under orders to proceed to Rangoon, where he will be employed in surveying the principal ports of the province of Burmah for the purpose of establishing an efficient system of harbour defences. The plan likely to be adopted is that recommended by Colonel Oliphant, late Chief Engineer of Burmah.

Messrs. Binny & Co. intend to start a spinning and weaving factory at Madras. Mr. Chisholm, the Government architect, has been asked to select a site, and draw out plans for the structure.

The Lucknow paper understands that the office of the collector and compiler of ancient Sanscrit manuscripts in Oudh has been abolished by the Chief Commissioner. This is the first step towards a general reduction in the several Government establishments throughout the Province, in conformity with the recent instructions received from the Government of India, calling upon the several local Governments to curtail expenditure as much as possible. The Public Works Department is, it is said, put down for a retrenchment of 7,000 rupees from their official budget for extraordinary works alone.

The *Punjab Courier* hears that it is probable that the Delhi Railway engineers will have to abandon the present Sutej Bridge and build another on a different site.

Through Indian channels we learn that the members of her Majesty's Diplomatic and Consular Services in China have erected a monument in memory of the late Mr. Margary, in the portico of the cathedral at Shanghai. It is a shield, carved in marble, and bears a suitable inscription, concluding with the text,—"Quit ye like men."

NATIONAL MEDAL AWARDS.

THE report of the examiners on the National Competition of Works sent up from Schools of Art, in competition for prizes, 1876, is distinguished from its predecessors in former years by giving the reasons of the judges for their decisions, as well as short judicious criticisms on the merits and defects of the students' works. Speaking of the modelling, the examiners say that it "was so inferior that it was impossible to find any work deserving of the Gold Medal, and the silver medals were awarded rather as an encouragement than on account of the merit of the works. The want of that workmanlike power over the material which is so noticeable in all French productions of this class was most conspicuous. As long as this continues, a large proportion of the decorative figure or ornament design in relief made for the English market will be in the hands of foreign artists." This criticism seems sound; but what the examiners say of wall papers and the analysis of flowers should have been more carefully set forth. "The analysis of flowers," they say, "is evidently applied wrongly to the treatment of flat decoration. As a means of gaining knowledge of the structure of plants, and so aiding the student in his drawing, and to a limited extent" (Why limited? we ask) "as suggestive of decorative forms, the analysis is of great value; but it is clear that in many cases there is an idea that a flower dissected and arranged geometrically will of necessity produce a good design. The result plainly shows that when the analysis is used to

supply the designer with ideas, and takes the place of natural artistic production and taste in combination of form and colour, it is more calculated to mislead than to be of use." A student might be led from this to regard the analysis of botanical forms as somewhat pool-pooled by the examiners, and to be advised to return to the naturalistic and exploded treatment of forms in wall-papers of some half-century ago. The analysis of floral forms, which the late director of art introduced, has made an impression on all the best schools of art in Europe, and notably in France, where it is considered an estimable and striking marking of the *goût anglais* in wall-papers, which find a market even in Paris. There is no doubt that the artistic influence of the new director of art will be beneficial to the schools, but it may be hinted to him that it ought not to be assumed that whatever is "is wrong." In the actual awards made, three out of ten gold medals are given for the drawing of the figure, and all three to students of the Lambeth School, the superintendent of which, we believe, has become now the Head Master of the School at South Kensington. Without disputing the judgment, there can be no doubt that such awards are somewhat of a discouragement to the other 130 art-schools, and give an aspect of biased judgment. It might easily have been avoided by awarding only *honorary* medals, beyond one, in schools where there is distinguished merit for the same class of drawings, and letting other schools have a chance of a gold medal.

GLASS FROM SLAG.

MR. RASHLEY BRITTEN, of Redhill, Surrey, read a paper before the Iron and Steel Institute at Leeds, on the 21st inst., "On the Utilisation of Blast Furnace Slag, with its Heat, for the Manufacture of Glass." He said,—

Few of the substances which occur as manufacturers' refuse or by-products have attracted more attention than the scoria or cinder formed in the smelting of iron ores. The vast quantity produced, and its liquid form, at once suggest the idea of extensive usefulness; and all that seems necessary at first sight is to collect it as it flows, and forthwith cast it into a thousand articles of utility. Experience, however, has shown that this is attended with difficulty arising from its behaviour as it cools. When allowed to solidify slowly, the particles of slag arrange themselves in a crystallised form, and the substance becomes tough, and presents the well-known grey stone appearance; but if chilled by contact with a mould, or any surface causing rapid congelation, it becomes vitreous and brittle, and of a black or dark brown colour, so that in the same piece two wholly dissimilar structures may often be seen. Unequal tensions are thus occasioned, causing the substance to crack and break unless prevented by such slow and careful annealing as involves considerable trouble and expense. The purposes to which at various times it has been proposed to apply this material are strangely various, and among others are those of casting it, in imitation of stone, directly into paving blocks, slabs, and pipes; of colouring it and making it into decorative tiles and columns to resemble marble; of shaping it into architectural ornaments of black obsidian; of converting it into bricks; blowing it into a white wool; pulverising it into cement; and also of reducing it in water to the state of sand, in which form it has been advertised as a valuable manure. Most of these schemes have failed and been abandoned; still the building and paving materials now made from slag at Middlesbrough seem of good quality, and it is to be hoped that their manufacture will prove remunerative; but the cost of carriage for such weighty and necessarily low-priced articles would appear to be only too likely to confine them to a comparatively narrow local demand. The only use as yet found for any considerable quantity of slag is to break it up for road-making, and to build rough walls and foundations where stone is scarce. By far the major part of what is produced is wholly valueless, and the iron smelter has not only to bear the cost of moving it out of his way, but frequently must purchase land on which it may be deposited. It will support no kind of vegetation, and must be well known by those who have seen the huge barren mounds which in all the iron districts disfigure the country for miles. In Yorkshire alone upwards of 4,000,000 tons of this ugly refuse have annually to be thrown away, while the total quantity made throughout the country probably

exceeds four times as much as this. Any method therefore of checking this accumulation, even to a small extent, may fairly engage attention. There is no novelty in the idea of employing slag as an ingredient of glass. It has long been so used in this country to some extent, but on a larger scale abroad. In the Forest of Dean persons are employed about the old charcoal iron cinder heaps to collect the more vitreous-looking pieces, which are supposed to be the only suitable portions, and these are put under stump heads and pulverised in water; the resulting sand is then dried and sent to the glass-makers of Bristol, who mix it with their other materials and melt them down together. The practice is, however, fast becoming obsolete, because it is found that the cost of preparation and transport, and the very intense heat required to forge slag which has once cooled, leaves no advantage from its employment instead of other materials. A few years ago the price paid for this slag sand delivered at Bristol was as much as 20s. per ton, and this in 1875 had diminished down to 12s. 6d., which was said to be scarcely remunerative. For perfectly white glass, such as crystal, it is obvious that slag can be of no value at all, in consequence of the amount of iron it contains, which cannot be eliminated, and would produce a green or amber colour. Still iron is present more or less in all glass. The analyses of specimens of the window glass of commerce exhibit as much as from one half to one and a half per cent., it being possible to neutralise its effect to a considerable extent by decolouring materials. For all glass in which a tinge of colour is either needed or is not detrimental—and this includes an extremely large proportion of all that is made—a little iron does no harm; it is, in fact, often purposely introduced as an important element, for it is capable of replacing other flux, and so lessening the amount of alkali which would otherwise be required. Some estimate of the probable intrinsic value of slag to the glass-maker may be seen from the following table, in which the ascertained composition of slag of an average description is placed side by side for comparison with that of common bottle glass:—

Composition of Iron Slag (Welsh or South Staffordshire). 40 per cent.	Composition of Bottle Glass (Quantities variable). 45 to 60 per cent.
Silica..... 35 "	18 to 28 "
Lime..... 16 "	6 to 12 "
Alumina... 6 "	0 to 7 "
Magnesia... 1 to 2 per cent.	2 to 7 "
Alkali..... 1 to 2 "	2 to 6 "
Oxide of iron 1 to 2 "	2 to 6 "

A trace of sulphur is also found in slag associated with the lime, but this need not be regarded, as it is insignificant in quantity and readily passes away with heat. It will be observed that there is nothing in this waste of the blast-furnace which is not represented in glass. It is also clear that it really contains less iron than is often required by the glass-maker. Some striking facts, therefore, arise which may be pointed out. The glass-maker must buy all the above ingredients or their equivalents. They represent large quantities, and he has to pay for their conveyance to his premises, where they have to be carefully mixed and moved again, and finally put into his furnaces, there to be kept at a white heat for many hours till the highly refractory substances are dissolved and fused. The iron-master, with a different object, is always melting down precisely the same materials; he cannot produce his iron until he has first converted the gangue of his ore into glass; but this he calls "cinder," and gets rid of it as best he may. The cinder is not readily recognised as glass because it looks like stone, but all glass will look like stone if cooled slowly from its liquid state. The cause of slag being so completely devitrified is that it is too rich in lime and too poor in silica. The glass-maker, however, has to buy his lime at five or six times the price of his silica or sand, while all his ingredients together cost him comparatively little more than the very large quantity of fuel he must burn in order to bring them into the melted form in which the iron-master throws all his glass away. The question, therefore, to be opened out is whether there may not, to a great extent at least, be a remedy for these practical anomalies. May not the manufacture of crude iron be so combined with that of glass that the latter may be produced so cheap as to render it available for many additional uses, possibly more extensive than those to which it is at present applied? Glass-making now fairly ranks among the largest industries of the country, and commands a wide export trade. It is a material of great beauty as well as

strength, and, being nearly proof against all chemical reactions, is quite unrivalled for durability and cleanliness, and with those qualities it is capable of being manipulated or pressed and moulded into shape with greater facility than any other known substance. If then, as will be found probable, it can be produced in finished forms cheaper than any other material, not excluding even stone, slate, or common earthenware, it is difficult to foresee the extent of its application. At scarcely any extra expense it may be made of almost any colour, or absolutely black like jet, in which latter form it might, for many purposes, serve better than the finest marble. As one example of usefulness, its suitability for roofing may be mentioned. It may be either opaque or clear to admit light. If opaque it would be less transparent to heat than slate, and as it could without skilled labour be rolled into the desired forms, either plain or highly ornamental, it is likely that they might largely take the place of slates, by being sold at a lower price and yet at a handsome profit. The paper proceeded to discuss the necessary treatment. He added:—The constituents of slag are common to all kinds of green glass used either for bottles, or windows, or even mirror-plate; therefore, by diluting them with the usual pure materials to a greater or less extent, the compound may be brought up to any standard short of the purity from colour inconsistent with the iron or sometimes manganese residing in the slag. Perhaps it is scarcely to be expected that slag glass will ever be produced quite equal in colour to the ordinary best window glass; still it would be premature to anticipate what may be done should it ever become worth while to adopt special means for rendering the slag purer. In regard to all other essentials, such as clearness, brilliancy, strength, plasticity in working, power of resisting acids, and the capability of being cut with a diamond, it may be made equal to any other. The principal question has next to be considered of how far it is possible to combine the manufacture of glass and iron without in any way interfering with the necessary continuous operations of the blast furnace, for this, as a matter of course, is absolutely essential. Blast furnace works where pig iron only is made frequently stand in pairs, in isolated situations, with plenty of space around, on which glassworks may be erected on any scale; and in many instances they might be built close up to the sides of the furnaces, and extending laterally away from the pig bed. In that case the slag might be run directly into a glass furnace, on the well-known plan of Mr. Siemens, for continuous founding and working. When there is insufficient room for this the glassworks might be at some distance, and the slag could be collected and conveyed to them in a state of fusion in large covered iron ladles on wheels, similar to those used in some Bessemer steel works, where the molten iron is carried upwards of a mile to be poured into the converters. Various other plans will suggest themselves to suit the exigencies of the existing works. The foregoing observations are founded on the result of a long series of experiments extending over the greater part of the last three years, in which the author has endeavoured to test, in every way open to him, the soundness of his conclusions before submitting them to criticism. A few specimens of the glass produced from slag are on the table for inspection, and they are not to be regarded as perfect, but only as indications of what may be expected from developed means. They are, in fact, only experimental results in the making of a few hundredweights at a time. The glass can, of course, lay no claim to high quality in point of colour; still this is its only inferiority, and no doubt it may be improved in this respect. But it may be observed that it is as nearly as possible the same tint as that purposely made to suit the requirements of horticulture, as evidenced in the great conservatories at Kew. It is also but little, if any, darker than a great deal of what is now used in the form of rough plate for skylights. It is well known that a tinge of green is of great utility in checking the heat rays and softening the glare of white light. Although slag-glass cannot compete with that higher quality which is produced so largely in this neighbourhood, it certainly has the recommendation of great cheapness, for it is doubtful whether glass as good could be made for less than three or four times its cost when everything is taken into account. A very large proportion of it represents so much material

and fuel which is now utterly wasted; and it only remains to point to the enormous quantity of coloured glass now employed for various useful and ornamental articles, and then to ask what further uses may be found for such material.

COOKING BY GAS.

WE have before now dwelt on certain obvious advantages attending the use of gas for cooking, the quickness with which it can be put on and off, its cleanliness, and so forth; but these have been counterbalanced by the asserted extra cost as compared with coal. If we may judge, however, from a bundle of statements in respect of Messrs. Leoni & Co.'s gas-cooking apparatus which have reached us, this objection has vanished. The chairman of the London Hospital says the waste in cooking is materially reduced, and that "as to the economy in comparison with the use of other fuel, we have reason to know that the averagedaily consumption of gas in the kitchen of the hospital (which has upwards of 600 in-door patients, and a corresponding staff of attendants) is something over 1,800 ft., representing a cost in money of about 7s. per day, the cooking being done on two days in every week partly by gas, and the other five days entirely." In an establishment at Westbourne-grove, where 1,200 people are cooked for daily, the proprietor asserts that the saving in the cost of meat will be 800*l.* per annum; while from the Westminster Aquarium comes the assertion that "for the requisite cooking for over 2,400 people during one week, the cost of gas was 1*l.* per day, and the saving in waste of meat more than sufficient to cover this outlay."

We have no particular desire to advertise Messrs. Leoni, but it seems to us desirable, in the interest of the public, that these results should be known, and that they and other manufacturers should continue to direct their attention to the subject, which is one of great importance.

RAISING THE RAVENNA BAPTISTERY.

MANY of our readers know this ancient and most interesting building, and its remarkable mosaics. With the exception of some trifling alterations and restorations, this structure, erected, it is said, by Bishop St. Ursus about the year A.D. 380, and ornamented with mosaics by Bishop Neon, A.D. 430, has, both in outward appearance and internal decoration, been left untouched since the day it was completed. Time, however, has wrought one great alteration in it. Partly owing to geological phenomenon, which causes a continual lowering of the ground between Venice and Ancona, and partly to the accumulation gathered above, the baptistery has sunk nearly 10 ft. in what below is marshy ground. To remedy this, and save the building and its mosaics from the dangers that menace it, Signor Lanciani has prepared plans for raising it bodily to the present level of the city, and these are to be carried out. The *Times* of September 25th contains a full and discriminating account of the mosaics which adorn it. We have a vivid recollection of the eight grand figures of prophets draped in white, and which there is reason to believe were executed at the time the baptistery was erected, viz., A.D. 380, rather than when the other mosaics were set up, A.D. 430. All must hope that the intended operation will be safely performed.

THE VALUATION OF RAILWAYS.

LORD SHAND has recently given judgment in the Scotch Court of Session, in two appeals by railway companies against the valuation of their property. In one case, that of Sutherland and Caithness line, the appellants stated that, in valuing their undertaking, instead of first ascertaining the net revenue, and thereafter deducting usual percentage on tenants' profits, the assessor took five per cent. on 27,800*l.*, the cost of stations, which gave 1,390*l.*, and added to that a sum of 1*l.* per mile of the appellants' line, which extends to 66 miles 27 chains, making altogether 1,456*l.*, which he fixed as the valuation of the appellants' undertaking. They maintained that if their undertaking were valued in the same way as other lines, its annual value would not exceed 631*l.* 17*s.* 7*d.* There was thus 825*l.* of over-valuation. The case having been discussed, the Lord Ordinary issued an interlocutor sustaining the appeal and remitting to

the assessor to amend the valuation-roll, giving effect to the principle contended for by the appellants. In a note his lordship says:—

"In the exceptional circumstances of this company the assessor has adopted the unusual course of entering in the valuation-roll the sum of 1,390*l.*, representing five per cent. on 27,800*l.*, the cost of the offices, stations, and buildings, adding a nominal sum per mile for the length of the railway. It is not disputed, however, that the amount thus entered in the roll as the basis for assessments is much in excess of the actual annual return of the property, and in excess of the return which might reasonably be expected for the property, one year with another, if it was let. I am of opinion that the mode of valuation usually applied to such undertakings, as the fair mode of fixing their annual value, namely, by taking their revenue, subject to the recognised deductions for working charges, &c., should be adopted there as in other cases. It is true the amount brought out is too small to admit of the assessor deducting five per cent. on the cost of stations, &c. In order to fix the valuation of the company's property in each county and parish, as the Valuation Statutes provide should be done, a specification in the statutes of five per cent. as the rate of deduction cannot, I think, be held to imply that the property must be valued above the sum which that rate represents when the true value is much less. The provision is one intended to fix, not the mode of reaching the gross valuation, but only the principle upon which that valuation, when reached, is to be divided amongst different counties and parishes through which the line runs; and if the actual value does not admit of so large a deduction the assessor must take a lower rate, or make the apportionment on the equitable principle, as nearly as possible in accordance with the statute as the facts admit. It would be injustice to the company to enter the property above what is admittedly its true value, and I think the provisions of the statute do not require that this should be done."

ASTON AND HANDSWORTH SEWERAGE WORKS.

On the 21st inst. the first stone of the combined sewerage works for the districts of the manor of Aston and Handsworth was laid at Salford Bridge, Aston. Mr. D. Barr, the chairman of the Aston Local Board, opened the proceedings with the following address, explanatory of the proposed works:—

The area of the manor of Aston is about 943 acres, and in 1881 the population was 946, and in 1861 it was 16,337; and at the time the Local Board was formed, in 1869, contained about 30,000 inhabitants. The increase has been exceedingly rapid, the population having risen to 33,948 in 1871, and is at the present time about 42,500. The consequence was, that the sanitary arrangements did not keep pace with the growth of the district, the whole of the sewage being allowed either to soak into the soil or to run into the River Tame or the Hookley Brook. The members of the Local Board were fully aware of the evils attending this unsatisfactory state of affairs, and determined to use their best endeavours to rectify it. Accordingly, in February, 1874, Mr. William Humber, civil engineer, of Westminster, was called in to advise the Board, and on the recommendation of that gentleman it was decided to apply to the Local Government Board for permission to borrow a sum of 80,000*l.* for the purpose of constructing a thorough system of intercepting and main outfall sewers, and for completing the remainder of the arterial drains. Major Hector Tulloch, R.E., one of the Local Government Board inspectors, held a public inquiry at the offices of the Board, in September, 1874, and, on his making a favourable report, permission was granted to borrow the necessary funds. The first instalment of the loan, amounting to 30,000*l.*, has been borrowed from the Public Loan Commissioners, at a rate of interest of 3½ per cent. per annum, to be repaid in thirty years, the annual repayment of interest and sinking fund being 5*l.* 8*s.* 9*d.* per cent., and was intended for the purpose of constructing the intercepting and portion of main outfall sewers, these requiring the most urgent attention; and also for the purchase of lands, easements, wharfs, and other expenses. The surveys, plans, and working drawings were completed in July, 1875, the intention being to make a provisional outfall into the river Tame, near the Salford Bridge, this being necessary in order to avoid interfering with the construction of the continuation of the main outfall sewers, and the necessary works for the treatment of the sewage. Before the works could be commenced, the Urban Sanitary District of Handsworth made overtures to Aston to be allowed the joint use of the intercepting sewers. Handsworth joins Aston on the north-west, and forms, at a higher level, part of the same watershed; consequently its natural, and indeed only practicable, outfall lies through the manor. The area of the Handsworth district is about 3,720 acres, and the population 14,500. An agreement, as recommended by Mr. Humber and mutually advantageous to both parties, was drawn up, by which Handsworth was to use the intercepting sewers of

Aston for their main outfall, the expense of construction to be proportionately borne between them. This arrangement materially reduced the cost of the sewers to Aston, while at the same time saving to Handsworth the considerable extra outlay of having to carry separate main outfall sewers through the manor. The alteration was sanctioned by the Local Government Board, and permission given to the Handsworth Board to borrow 15,000*l.*, their estimated share of the cost of the work. These matters, and the necessity of making fresh plans, &c., to suit the enlarged sizes of the sewers, and the alteration in other practical details, delayed the advertising for tenders until June last.

The lowest tender was by Messrs. H. Young & Co., Pimlico, to whom the Board have entrusted the works, and who have undertaken to complete the same within twelve months from their commencement for the sum of about 35,000*l.*

A NEW MISSION AND PUBLIC HALL IN WALWORTH.

In connexion with St. Mark's Church, East-street, Walworth, a new mission hall, which is also intended to be used for general public purposes, is now in course of erection in York-street, about the centre of the Walworth district. The architectural character of the building is Gothic, and it will contain a room 70 ft. in length, 28 ft. in width, and 25 ft. in height. On Sundays the building will be used for mission purposes and children's services, and on weekdays it will also be used as a night-school, and applied for lectures, in connexion with which there will be a reading-room and youth's institute, whilst it will likewise be let for public meetings, concerts, and other purposes of a miscellaneous character. The architects are Messrs. Henry Jarvis & Son, and the contractor is Mr. Marsland.

WELDING IRON.

At the meeting of the Iron and Steel Institute, at Leeds, Mr. Richard Howson, engineer, Middlesbrough, read a paper on this subject, in which he contended that it was possible to obtain a more homogeneous quality of iron by means of piling than by the rolling out of a mass of puddled iron. The author observed that there was impending change in the manufacture of finished iron, as it was admitted on all hands that machinery would soon entirely supersede hand-labour in the puddling process. Along with this conviction there is a current impression that iron will have to be puddled in large masses, and not divided into small balls, as in the ordinary practice; that the system of piling must be abolished; that piling means welding, and that welding is a mistake, and that homogeneity is the thing to be aimed at. "Now," said Mr. Howson, "when the matter is fairly considered, it becomes evident that the iron rolled from a puddled ball is in no case homogeneous, and that the larger the ball the more heterogeneous it is likely to be. The term homogeneous can only be strictly applied to iron which has been melted, such as the mild steel which is made in Sheffield, containing a low percentage of carbon. When a specimen of material of this class is treated with acid, the surface being first polished, there is usually no appearance of grain, and the action of the acid is slow. On the other hand, a piece of ordinary rolled bar subjected to the same treatment shows a fibre which stands out like whipcord." After defining the term "welding," and pointing out the conditions necessary for properly effecting that process, Mr. Howson described the methods of rolling and welding as practised at some of the leading iron and steel works. He then recapitulated in brief the points he had elaborated in support of his views, and which may be expressed as follows:—First, when two surfaces of wrought iron in a half-melted or viscous state are pressed together, the intervening cinder is expelled, provided it is liquid enough, and has a chance of escape, and cohesion results. This constitutes a weld, and if the proper conditions have been fulfilled such a weld would be as sound as any other part of the bar. Secondly, the requisite conditions are seldom, if ever, absolutely fulfilled in practice. When the surfaces to be united have a large area it is impossible to avoid enclosing some small quantity of cinder. The endeavour should be to reduce it to a minimum, and then dilute it by after-working. Thirdly, shingling a puddled ball is

essentially a process of welding, and the term homogeneous is altogether inapplicable to it. Fourthly, the conditions for perfect welding are in no case favourable in a puddled ball, and the difficulty increases with its size. Mr. Howson concluded by observing that he granted that machine puddling would before long entirely supersede hand-labour; but the question lay between working on a large scale and on a comparatively small one. The advantages claimed for the former were a saving in fuel, in labour, in waste from crop-ends, and in waste from reheating. The extent of such saving, however, depended upon the class of manufacture, and in no case was it very large. "On the other hand," said Mr. Howson, "we have the sacrifice of existing machinery and the cost of erecting new of an expensive class, also an increased liability to loss from the folding up of raw iron and fettling in the puddled ball."

THE MASONIC HALL, EDINBURGH.

The decoration of the various halls in connexion with the Masonic Institute in Exchange-street, has been completed, after designs by Mr. Lewis Soder, Edinburgh.

The general character of the style of decoration that has been adopted by the artist is that of the thirteenth century. The ceiling of the large hall is divided into three circles, the two smaller ones containing allegorical figures representing the seasons, these figures being connected by ribbons carrying fruits and flowers appropriate to the various seasons of the year. The central circle, which also is the largest, is divided into twelve compartments, containing the twelve signs of the zodiac. The formation of the centre portion of the ceiling is produced by a pink frieze outlined with gold, and the spaces between the circles are filled with the diaper pattern on a soft green ground. Round the whole runs a frieze which is broken up again by six medallions bearing Masonic emblems. Two smaller panels have also been introduced, containing conventionalised thistles. The thistle in its conventionalised form is also repeated in the cove of the ceiling, being produced with shades of dark green, buff, and purple on a soft green ground. The prevailing colour of the cornice is buff, some of the mouldings being brightened with gold, and sombre colours are introduced to harmonise it with the rest of the decorations.

The height and the general style of the orchestra gallery has given in a manner the key to the whole of the wall decorations. The idea of the artist has evidently been to continue the mouldings or the cornice below the gallery right round the room, and to divide the walls of the hall by these means into two parts. The top portion is filled with twelve arches, on each of the spandrels of which, on a blue ground, is a red shield with a square and compass in gold. Within the arches are represented, alternately, two different upright ornaments. Below the line of the gallery, and running right round the hall, is a coloured frieze, on which are introduced, so as to correspond with the arches and pillars above, medallions on a gold ground, containing the different masonic jewels. Below this, again, the wall is so treated by the introduction of a number of simple lines as to give the suggestion of a curtain, which is looped from the medallions and enriched at the bottom with a zig-zag ornament. Means of ventilation have been introduced between the cornice and the ceiling, and by the erection of two air-shafts (one on each side of the platform) in the form of Corinthian pillars.

The execution of the work has been contracted for by Messrs. George Dobie & Son, George-street, Edinburgh, by whom it is being carried out expeditiously.

Birmingham Art-Gallery.—The last published report of the Free Libraries Committee records an important gift from Alderman Chamberlain. He has placed at the disposal of the Corporation the sum of 1,000*l.* for the purchase of objects for the Art-Gallery, and has expressed his desire that this amount may be expended in the acquisition of a collection of specimens of industrial art. No opportunity has yet occurred of laying out the money in the manner desired, but the committee have the subject under consideration, and hope soon to expend the gift in a collection which may worthily contribute to the attractions, and promote the usefulness of the new Gallery of Art, about to be erected in Edmund-street.

THE "MARBLE" SKATING RINK.

In addition to the numerous skating-rinks which have recently been constructed and opened in the metropolis, one of an entirely novel character in the Clapham-road is intended to be inaugurated to-day. This new rink has appropriately been named the "Marble," the floor, which contains a skating area of 18,000 superficial feet, having been laid in Sicilian marble, polished. The rink has been constructed on an area of land forming the grounds in the rear of an old mansion on the east side of Clapham-road, called Thanet House. The entrance from Clapham-road is through the gateway and approach to the old mansion on the south side, along which an arcade has been erected, covered in with a glass roof. This leads to a corridor or promenade, upward of 10 ft. in width, and more than 400 ft. in length, running parallel with the skating-rink area. The south side wall is divided into panels on a pale green ground, and casts on pedestals are placed along its entire length, whilst evergreens and ornamental trees are introduced in profusion. The north side of the corridor is of lattice-work, with wide openings at intervals, thus giving the spectators a view of the skaters on the rink. A little more than one-third of the rink, at the east end, is covered in by a large semicircular roof in one span, supported by light iron lattice girder ribs, and in the centre of this portion of the rink there is a chandelier suspended from the ceiling. In carrying out the works in the open portion of the skating area advantage has been taken of a number of full-grown trees, in the grounds, which have been preserved, and impart to the rink a rural appearance. The open portion is lighted by burners, enclosed in ground-glass globes. In addition to the corridor on the south side, there is also an open promenade on the west and north sides, with ornamental plantations and flower-beds adjoining. At the north-east corner there are refreshment and smoking rooms, together with an orchestra for a band, which will play at intervals daily.

The rink has been designed and carried out by Mr. Alfred Timewell, the owner.

"COALBROOK-DALE CASTINGS."

THE Coalbrook-Dale Company came prominently forward on the occasion of the Great Exhibition of 1851, and from that time to this have maintained their position, though the reputation of their castings has varied now and then during the period. The Catalogue of the Castings and Work in Metal made by the company is now before us, and is a remarkable work. It consists of two large stout volumes, and the articles illustrated, classified for easy reference, range from a flat-iron or a skid, worth a few pence each, to fountains and gates costing thousands of pounds. It appears to be intended for the use of the iron trade solely, and duplicate copies may be obtained by those to whom it is presented at 4l. 4s. per copy.

STREET-CLEANSING IN ST. PANCRAS.

"PAYMENT BY THE LOAD."

MR. CHARLES WORRELL, chief clerk of the Works Department, St. Pancras, has submitted to the Works, &c., Committee of the Vestry some comparative statistics, showing the result of the load-work system of payment for cartage of road-sweepings, from which it appears that the estimated number of loads that would have to be carted under the load-work payment system during the year ending the 25th of March last was 29,809 loads. It was anticipated that an increased number of loads would be recorded, because much of the cartage under the old system was done at night, after the vestry's workmen had finished sweeping, and also because the altered system would stimulate attention. The estimated cost of the above was 5,709l. The lowest tender for the same period, at per lump sum, amounted to 6,224l. The actual number of loads carted during the year ending the 25th of March last, was 30,797; the cost of carting, at per load, being 3s. 6d., 3s. 9d., 4s., in one ward 3s. 11d., and in another 4s. 5d. per load. The actual cost of cartage for the said year, of road-sweepings (by load-work payment) was 5,928l. 7s. These figures show that while only 25,643 loads were removed from the streets under the lump-sum system, the actual number of loads removed under the load-work system was 30,797, and this in a winter season exceptionally long and wet,

and the streets better cleansed to the extent of the removal of 5,154 additional loads of sweepings. Also, that while the lowest tender for the same period, at per lump sum, was 6,224l., the actual cost for the said year of the cartage of road-sweepings, by load-work payment was only 5,928l. 7s., being a saving of 295l. 13s. per annum.

PIECE-WORK AND THE TRADE-UNIONS CONGRESS.

At a meeting of the Congress last week, Mr. Knight (Boilermakers, Liverpool) moved,—"That this Congress observes with regret that in a very large number of cases piece-work is a fruitful source of disputes, and most injurious to workmen; their employers, managers, and foremen making the same a cloak to reduce wages and introduce sub-contracting, with its attendant evils; the system also offers in many instances an inducement to workmen to lose time, and to remove the security which they enjoy under the day's work principle. We therefore pledge ourselves to use our utmost exertions to reduce its application, and resist its extension in all those places where these evils exist." Mr. Knight said this question was a very difficult one, for he thought that many delegates who represented large associations were continually on the piece-work system, and in many cases they found it operated very well, but he would point out a few of the evils arising from piece-work. One of the arguments of the employers in favour of it was that it enabled them to take contracts and give some correct estimate of the cost; but they found that when the workmen earned anything like a respectable wage at this piece-work the employers took steps at once to reduce the prices, and so the prices were time after time continually decreased. Foremen in a piece-work shop became sub-contractors, and the whole object which the sub-contractor had in view was to get as much money as he possibly could out of the men who were working under him. He became a perfect slave-driver. Another evil was that unskilled workmen were employed at a cheaper rate by these sub-contractors, and the result was that they got a large amount of imperfect work done through the system.

Mr. Duncan Kennedy (Glasgow) seconded the motion, and believed that piece-work was one of the greatest curses with which the country had to contend. In some works it was the introduction of the system of blood-money.

Mr. Townley (Dyers), who supported the motion, said that the Bishop of Manchester had christened the system of piece-work "scamp work," and he believed that it was scamp work.

Mr. Memmet (Sheffield) moved an amendment,—"That in the opinion of the Congress it is unwise to interfere with the question of day or piece work." Every workman, he asserted, ought to be allowed to make the best use of his energies and his skill. He did not believe that it was right to tie the hands of a skilful, hard-working man behind him, simply to make him go the same pace as the man who was not so industrious. Again, piece-work enabled the employer to give an estimate of the cost of the work. They could go into the market knowing what a dozen knives had cost, and what they could sell them for.

Mr. Bailey (Preston) did not think that the question of piece-work or day-work was one that could be dealt with by the Congress. It was rather one to be considered by individual societies, which it affected one way or another.

After some more discussion the subject was got rid of by a resolution, which was carried, that the Congress go to the next business.

MEDIÆVAL AND MODERN WORK.

SIR.—Your interesting article on the restoration of Chester Cathedral contains the statement that there is a *je ne sais quoi* about the buildings of Mediæval architects which is unattainable in modern times. It is hard to see how this should be if the lines which the ancient architects confined themselves to were followed. In all parts of their buildings, but especially in detail, those lines appear to be chastity of conception, delicacy of proportion, and quaintness of expression; the whole being accompanied by a high finish. It is true that no modern buildings are in any way comparable to the ancient edifices; but I think it will be found that the closer these lines have been followed the greater is the approximation.

J. CARTER.

BAD BUILDING AT WARRINGTON.

SOME time since we briefly noticed the arbitration case of Artington v. Pierpoint & Collin. Letters explanatory of the state of things found in pulling down Mr. Artington's house have been published. The writers are Mr. R. W. Hughes, architect; Mr. W. Helsby, clerk of works; and Mr. Lewis Hornblower, architect. These letters go to show that the materials and workmanship were as bad as, bad could be. Mr. Hornblower, for instance, says:—

"A greater imposition could never have been attempted to be foisted upon any man as work constructed in the best and most workmanlike manner," to quote the words of the specification. Concrete of the character of that used (which was not concrete, for that term, in an architectural as well as in any other sense, means a compact and homogeneous mass adhering together) is worse than useless; it was an element of weakness instead of strength, composed, as it chiefly was, of loose broken bricks, broken stone, scapplings, and lime chippings pitched into the foundation, with a thin scrape of common mortar thrown in at intervals. The bulk of the loose material being dry, was simply a drain leading all the water from the surrounding ground under the foundations, and thereby endangering the safety of the superincumbent walls; instead of acting, as it would have done had the concrete been in accordance with the specification, as a sound and solid foundation for the walls of your house, resisting perfectly the damp, and defying the power of the floods to injure it. The house was quite unfit for your habitation—you could never have been certain how and when the foundation might give way. The roofing over your head was miserably weak, and showed signs of giving, while every particle of the joiners' work was vile. . . . I must say that if such work is to be tolerated, it will be useless for a man to employ an architect to protect his interests, and see justice done alike to proprietor and contractor. I repeat, it is perfectly useless to have professional aid if this is the way you are to be treated. You deserve the thanks of the architectural profession throughout England, in exposing such treatment."

Mr. Artington writes to say that the costs and expenses which he has had to pay are more than 1,500l. in excess of the amount received from Messrs. Pierpoint & Collin.

A MAN SUFFOCATED IN A SEWER AT BOOTLE.

ON the 18th inst. four men in the employ of the Bootle Corporation were engaged in examining and cleansing a sewer leading from Stanley-road to a new thoroughfare which forms a continuation commencing at Merton-road and running to Linacre. The object of their examination was to discover the length of the sewer, which was constructed by Lord Derby's agent some years ago, but had never been used for ordinary sewerage purposes. Two of the men, under the direction of the surveyor, entered the sewer, with instructions to return immediately if they detected the presence of any noxious gases. Another of the men, who was standing at the bottom of the manhole, complained of poisonous gases, and it began to be feared that the two men who had entered the sewer had been suffocated. The man in the manhole shouted for assistance, which was promptly volunteered by two chimney-sweepers, who entered the manhole, and, though they suffered considerably from the poison, succeeded in bringing out one of the men, who was in an apparently lifeless state; he afterwards recovered. The brave chimney-sweepers (whose names are James Johnstone, master, and William Pover, journeyman) again descended into the sewer, and, although nearly overcome by the impurity of the gases, they succeeded in finding the other man (Thomas Lee), and were dragging him out, when one of them fell down exhausted. The other with great difficulty carried his "mate" to the manhole, and tying him to the rope, had him hoisted to the surface. Meanwhile another manhole was opened, down which two other men descended, and shortly afterwards succeeded in bringing up Lee, who was conveyed to the Bootle Borough Hospital in an unconscious state. He was partially restored to consciousness, but died three hours after admission. An inquest was opened on the body of Lee on the 20th inst., when Mr. Pennington, Lord Derby's agent, was present, and evidence was given by Mr. George Biddle, the borough surveyor, who stated that the sewer had several times before been inspected up to the point where the accident occurred, but the men had never gone beyond that. It did not occur to him that there might be noxious if not inflammable gases in the sewer, because the men had been at work in it for several weeks. The coroner (Mr. C. E. Driffild) expressed it as his opinion that the surveyor had left too much to the discretion of the men, and the jury considered that the Corporation were more or less to blame for not having Lord Derby's plans of the sewer. In the end, however, a verdict of "Accidental death" was returned. All honour to the sweeps!

CHURCH-BUILDING NEWS.

Stretham.—The parish church, Stretham, in the Isle of Ely, has been reopened, after being closed for two years, for purposes of restoration. Great alterations have been made in the church. The old gallery has been removed, two transepts have been added, the north aisle widened, and a new arcade made on the north side, an organ-loft added, and new seats in every part. With the exception of the Norman buttresses, the whole church is in the Decorated style. The parts that have been destroyed were of the fifteenth century, and it is now, as one of the speakers after luncheon put it, "a new church with just a trace of the old."

Cheltenham.—Progress is being made towards the erection of the new parish church for Cheltenham. Plans and specifications have been obtained from Mr. Christian, architect, Whitehall-place, London, and tenders have been invited from builders for the erection of the church.

Dunster.—The parish church of Dunster, Somersetshire, was reopened on the 13th inst., after restoration under the direction of Mr. G. E. Street, R.A. Nearly the whole of the walls have been pulled down and rebuilt with sandstone, from the Lodge-roads quarry. In the east wall a dilapidated late Perpendicular window, which had been partially blocked up, was taken out; and in taking down the walls, stones of a thirteenth-century window were found, some of which had been made out of stones which had been used in the Norman work. The window has been restored as in the thirteenth century. The roof is of oak, and the greater part is new. A number of tiles, representing the arms of various families, were found among rubbish under the floor, and their designs have been copied in making new ones, with which the whole of the chancel has been paved. There are no less than forty-five different varieties. The original high-altar slab was found in the north aisle of the parish church, where it was used as a monumental stone. It has been replaced on columns of Blue Anchor alabaster, and it also has an alabaster super-altar and reredos. The altars are also of alabaster, and the effect of the whole of the work in this material is very striking. The fine monuments of the Luttrell and Everard families have been completely restored. On the north side, at the entrance of St. Lawrence's chapel, the ancient table monument of the Mohuns, with recumbent effigies, has been repaired. St. Lawrence's chapel has been entirely rebuilt, and the altar-slab, with its five crosses, and one on the centre of the broad face of the stone, has been fixed in its proper position. The wood and stone carving has been done by Mr. Harry Hems, of Exeter, and the contract has been carried out by Messrs. Hales & Sons, Salisbury. The cost has been 8,000*l*.

Binton.—The newly-rebuilt parish church at Binton was consecrated a few days ago by the Bishop of Worcester. The original church at Binton, judging from some few remains of Norman date which existed in the north walls of the nave and chancel and other parts of the fabric, must have been erected at least as early as that period, or it may have been rebuilt on Saxon foundations. No remains, however, of any stonework indicative of so early a date have been discovered. The chancel and south side of the nave had been by no means successfully restored in the seventeenth century. With the exception of these last restorations, however, which of course had to be taken down, the whole of the walls were in such a dilapidated condition that it had become a necessity to rebuild them entirely. The tower, an interesting specimen of twelfth-century work, was built also on very insecure foundations, and although of inconsiderable height, was much out of the perpendicular, and being only secured from falling by a churchwarden buttress of huge dimensions, rebuilding became a matter of necessity. The church, as rebuilt, being of larger size in every respect than the old one, increase in height in the new tower became also imperative; the whole of the old features, however, in the latter have been, as far as practicable, retained in the new work. The church, as rebuilt, consists of a nave, 46 ft. long and 23 ft. wide, and chancel, 30 ft. long by 18 ft. wide. There are also north and south transepts, the south transept forming vestry and organ-chamber. The tower is placed, as formerly, at the south-west angle of the nave, and the lower part forms an entrance porch, the upper portion consisting of ringing-chamber and belfry. The nave is divided from the chancel by a moulded

stone arch springing from triple-shafted corbels, with carved capitals. The windows of the nave and the sides of the chancel have traceried heads of Early English geometric character. The general contractor was Mr. William Porter, of Malvern. The pulpit and carvings were executed by Messrs. Martyn & Emms, of Cheltenham. The architect was Mr. Frederick Preedy, of London. The total cost of the building has been 3,000*l*, 2,000*l* of which were contributed by the Marquis of Hertford.

Walsall.—After much renovation and repair in continuation of the work begun some eight years ago, this church was re-opened for Divine service on the 17th inst. The interior has undergone a complete restoration. The cast-iron windows have been removed and replaced with stained glass in various devices of lead fret glazing. The walls of the nave are now coloured partly a cream colour, with the dados of the floor and gallery painted in cinnamon, relieved in diaper work of pale-brown, with bands of pink and green, the window arches being relieved with a Gothic (trefoil) ornament. The ceiling is coloured a light azure blue, relieved with grey and pale yellow. The gallery fronts are coloured purple-grey, with the mouldings relieved with several neutral tints. The chancel walls are executed in diaper-work of different designs in various neutral tints, chiefly in pink and maize united with bands worked out in ribbon patterns. The hood-moulding to the window is relieved with blue and gold, and the triple arches are surmounted with a gold band with the text "Holy, holy, Lord God Almighty," executed in blue and vermilion. The reredos is executed with a purple groundwork enriched with corona ornaments and monograms in gold relieved with green and red. The side portions are executed on a light-red ground, relieved with crimson devices with green bands. The present work, which will cost about 800*l*., has been entrusted to Mr. G. B. Nicholls, architect, Handsworth, the builder's work having been carried out by Mr. J. Adkins, of Walsall, the stained glass windows executed by Messrs. Camm, of Smethwick, and the decorative work by Mr. Gee, of Stafford.

DISSENTING CHURCH BUILDING NEWS.

Barnstaple.—A new chapel for the "Bible Christians" was opened at Barnstaple on the 6th inst. The building is situate in Bear-street, and has been built from the designs of Mr. W. C. Oliver, architect. The materials used in the construction are Marwood stone, with Bath stone dressings, and the style chosen is the Early Geometrical. The columns in the doorways are of polished red granite. Welsh slates cover the roofs, surmounted by red ridge tiles. The capitals, corbels, bosses, &c., have all been carved by Mr. Harry Hems, of Exeter, and his assistants. The whole of the work has been carried out by the various contractors,—Mr. John Pulsford, for the stonework; Mr. Vicary, for the carpentering; and Mr. Bevan, the walling,—all of Barnstaple, under the immediate supervision of the architect.

Endon.—The services in connexion with the opening of the new Wesleyan Chapel at Endon were commenced on the 14th inst. The total expenditure has been 1,700*l*. The architect of the building was Mr. William Sugden, of Leek.

Dalston.—The Congregational Church, Middleton-road, Dalston, was re-opened on the 21st inst., after alterations and improvements, which include the erection of an entire new frontage, built of Kentish rag stone, and containing four entrances, with lofty turrets on either side. The interior of the building has undergone considerable improvement. The organ has been removed to the ground-floor, and the gallery at the south end so altered as to be more in accordance and in unison with the interior generally. The walls have been re-decorated. Mr. J. Brown, of Finsbury, was the contractor; Mr. C. Pertwee, of Chelmsford, being the architect.

Northampton.—On the 18th inst. the foundation-stones of a new Wesleyan Chapel to be erected in Regent-square, Northampton, were laid with due ceremony. The building will replace the chapel fronting Grafton-street, and will be built in a plain Italian style, from the design of Mr. S. J. Newman, of Northampton. The front will be of red pressed brick, with Bath stone dressings enriched with ornamental brickwork of various patterns. There will be accommodation on the ground-floor for 419 adults, and in the galleries for 306 and 87 children, making a total of 812 seats. The whole of

the seating, rostrum, and gallery front are to be of polished pitch pine. Beneath the chapel there will be an infants' schoolroom, in size about 35 ft. by 22 ft., containing a gallery to accommodate seventy children. There will also be five class-rooms in the basement, each 11 ft. high, together with storing-closets and chambers fitted up with heating apparatus. There are to be two vestries on the ground-floor at the back of the chapel, under the organ-gallery, to which there is a back staircase communicating with the minister's vestry. Mr. John Watkin, the builder, has contracted to complete the works by April next. The total cost will not be far short of 4,500*l*.

Salisbury.—A new Unitarian chapel was opened at Salisbury on the 21st inst. It consists of a nave, without aisles; transepts, apse, organ-chamber, vestry, and vestibule at the west end, with principal entrance from Atkinson-road, having a turret above the porch and a minor entrance on the north side. The chapel is built with ashlar dressings to the doors, windows, &c., and Yorkshire wall-stones, lined with brick inside, and plastered, the style being plain Geometric Decorated. There is accommodation for 250 persons. The seats and other joiners' work are of pitch-pine, stained and varnished. The pulpit is of oak, with Caen stone base, having seven marble shafts grouped round it, the lower part being presented by Mr. Hobbs, carver. The contract was taken by Mr. J. Birch, of Manchester, and the works have been carried out from the designs of Mr. J. G. Elgood, architect. The cost will be about 3,000*l*.

ACCIDENTS.

New Law Courts.—Last week Thomas Walker, of Wiltshire, expired in King's College Hospital, in great agony, from the effects of a fall from a scaffold at the New Law Courts in the Strand. The deceased, who was 26 years of age, ascended the scaffolding, and on reaching the upper portion, a height of over 50 ft., he suddenly stumbled, and fell head-foremost. In his descent he struck a portion of the scaffolding, and fell with a crash on his face. On his removal to the hospital, the surgical officials found that he had sustained shocking injuries, his face being battered in and his thigh-bone broken.

British Museum.—Chas. Rice, a messenger in the British Museum since November, 1837, was going up the back stairs of the building, when he was seized with giddiness, and fell over the hand-railing from the third landing to the hall floor beneath. He was picked up insensible, and sent to the hospital, where he died directly. The hand-rail was about 3 ft. high, which was the usual height. Mrs. Elizabeth Rice, the widow, said that the deceased was subject to fits of giddiness.

Holborn.—On the 20th inst. an inquest was held by Mr. W. J. Payne at St. Bartholomew's Hospital upon the body of James Hibberd, a carpenter, who died from injuries received through a fall whilst employed in rebuilding the premises of Mr. J. Morgan, hosier and shirt-maker, High Holborn. Walter Penfold, a carpenter, stated that he was in the employ of Mr. J. B. Axford, Henry-street, Gray's-inn-road, by whom the deceased was also employed. At half-past eleven on the previous Saturday, he and deceased were working at the premises, 323, High Holborn, on the top floor, inside the house. Deceased was standing on a stool about 4 in. in width. The stool went over, and deceased fell through a well-hole, and was precipitated from the top floor to the basement. The well-hole was 14 ft. by 4 ft., but a portion of it had been boarded up, leaving a space of about 4 ft. square. The deceased fell a distance of from 60 ft. to 70 ft. The jury returned a verdict of accidental death, and expressed their opinion that care ought to be taken in future to prevent a recurrence of similar accidents.

Freemasonry and Archaeology.—The brethren of the Falcon Lodge of Freemasons, Thirsk, with an eye to architectural study, are at present endeavouring to form an archaeological section. In the immediate neighbourhood there are no fewer than 100 churches, abbeys, castles, and historic sites worthy of examination, and it is thought by the brethren that these places of interest might in turn be visited, with the additional advantage of having their more remarkable details sketched and indicated by professional gentlemen who are or may become members of the lodge.

SCHOOL BOARD SCHOOLS.

Dumfries.—Two new public schools erected by the Dumfries Burgh School Board were opened on the 4th inst. The one situated in Loreburn-street was built from plans prepared by Mr. Kinneir, architect, Dumfries. It will accommodate 500 children, and cost, exclusive of the site, about 3,770*l.* There are two distinct departments for boys and girls, and the school-rooms are provided with appliances for heating and ventilating. The new street at present being formed from Loreburn-street to the Lovers' Walk will run past the school. The St. Michael-street school is erected on a feu of St. Michael's Glebe, and the plans were prepared by Messrs. A. Crombie & Son. It will accommodate 400 scholars, and cost, exclusive of the site, about 2,800*l.* A new street is also being formed from Craigs-road to the Almshouses on Broom's-road, and the principal frontage of the school is towards this new street.

Beoley.—The new Board schools at Beoley, which are being built by Messrs. Collins & Cullis, of Tewkesbury, from the designs of Mr. John Cotton, Birmingham, architect to the Board, are progressing rapidly. The building was commenced in April last. The work is being carried out under the direction of Mr. Cotton, the architect.

Edgwick.—New Board schools at Edgwick have been taken possession of by the Foleshill School Board. The buildings are situated at the corner of the Edgwick-lane, and front the main road from Coventry to Bedworth. Facing the highway is the infant school, 40 ft. by 29 ft., with class-room 22 ft. by 23 ft. Adjoining the class-room is a porch, 16 ft. by 6 ft. At the rear are the girls' and boys' schools, the former being first. It is 39 ft. long, part of it being 33 ft. wide, and the remainder 20 ft. wide. The class-room is 16 ft. by 20 ft., and the porch attached, 15 ft. by 6 ft. The boys' school, class-room, &c., are of similar dimensions. In each porch there are lavatories. The buildings are of red brick, with blue brick bands and dressings. The roof is of bands of blue and brown tiles, with ornamental ridges and finials. There are two main entrances from Edgwick-lane, which will be fitted with iron gates and piers. The work has been done by Mr. G. Storer, from plans prepared by Mr. A. H. Byrd, the outlay being about 2,000*l.*

Burslem.—The Board have just opened their new schools, which are the first they have erected. The new buildings, of which Mr. G. B. Ford, of Burslem, is the architect, have been erected by Messrs. Matthews, of Hanley. They are situated in the North-road. The three departments have each a large school-room with two class-rooms, the combined area of the latter being equal to the former. The girls' and infants' school-rooms and class-room enclose three sides of a quadrangle. The quadrangle itself, being roofed, forms a covered playground, which will not only be found a very valuable adjunct, but can at any time be used as a school-room, capable of accommodating 200 additional children. The boys' schoolroom and class-rooms are comprised in a block apart from that of the girls and infants, being severed therefrom by a three-story building, in which provision is made for a care-taker and teachers' retiring-room, and in the basement of which is a vault for the warming apparatus. Externally the buildings are faced with red bricks, and the roofs are covered with tiles, ornamentally arranged. Internally the walls are faced with red bricks, the lower parts of which are arranged in patterns of various coloured bricks, terminating along the top with a band of tiles. Special attention has been paid to lighting, warming, and ventilation. The windows are placed high up. Flues, for the admission of fresh air, on the "vertical principle," without causing draughts, have been constructed within the walls, and the whole of the rooms and covered playgrounds are warmed by hot-water with pipes placed beneath the floors, so as not to form obstructions. The accommodation provided is for 160 boys, 160 girls, and 260 infants, being a total of 580. The builders' contract, which includes fencing, asphaltting, galleries, water-fittings, and care-taker's house, is 3,914*l.*; warming, 156*l.*; making a total of 4,070*l.* In addition to the furniture and other requisites with which the schools are supplied, provision has been made for gymnastic exercises. These appliances have been designed and manufactured by Messrs. Charles Spencer & Co., of London, and they include the well-known giant's stride, parallel bars, a jumping-stand with weighted cord and indicator, contrived to obviate acci-

dents, and a compact portable apparatus which, under the name of pangymnasticon, combines trapeze-bar, ladders, swarming rope and pole, stirrups, and swing, and ingeniously provides for a great variety of athletic exercises appropriate for children.

MASTERS AND MEN.

Dumbarton.—At a recent meeting of the master joiners of Dumbarton with a deputation of their workmen, it was agreed to grant an increase of 1*d.* per hour on the rate of wages.

Glasgow.—The latest phase of the Glasgow joiners' strike, which, although formally ended, is (according to the *Scotsman*) being still continued in secret, shows rather a curious development of trade unionism. It is said that on the men having resumed work, "a picket" of the leaders was told off to visit the shops of the city with the view of ascertaining whether those who laboured in them were unionists. In cases where men were found who did not belong to the organisation, they asked that they should at once consent to the enrolment of their names. During this shop-to-shop visitation, they alighted on several so-called "renegades," and they not only demanded that these should return, but that they should each pay a heavy fine. When this was refused, the sum, which was at first fixed at 1*l.*, was gradually raised, and in the end they usually managed to obtain the money. The course adopted when unable to secure their terms by argument, was to advise the union men to cease work. In several instances the masters have received intimation from the men to that effect, but as yet the operatives have managed to gain their ends without resorting to the extreme measure of striking.

Belfast.—The workmen of Messrs. Harland & Wolff, iron shipbuilders, Queen's Island, Belfast, have been out on strike for the past month. On the 16th inst. there was a meeting of the reconciliation committee, and it appeared that all the trades on strike, except three, had passed resolutions giving unlimited power to the council to settle the dispute, but that the three others would not go further than their previous proposition, which was, to split the difference and allow 50 per cent. of the demand of the employers.

HOUSE AND HOME IN TOWN.

SIR.—Those of your readers who take an interest in the future—or indeed in the present—welfare of our great metropolis will be grateful to you for returning to the subject of house and home in the heart of town, and for having given so much attention to it for so long a time.

The evils attending house-building and house-occupation in great cities are caused mainly by the want of information, and by the wrong-headed prejudice of those who live in them; and there can be little doubt that the moment a demand for well-built and convenient houses arises the supply will follow it; and that if tenants show themselves desirous of living in houses on what you have termed the horizontal system, speculators will eagerly turn their attention to them.

I have under my supervision a district of London in which many poor persons live in badly-constructed old houses. These are being renewed from time to time; but I find that it is only public bodies which replace the present two and three storied tenements by lofty well-built houses in flats. The speculators all build small houses, again,—better ones, it is true, than the old ones, but all of them adapted only for single families, yet sure, almost without exception, to be occupied as lodgings by many families. I believe that this pays better, there being no kind of prejudice against the private houses, and a strong prejudice against dwellings of the Peabody and Waterlow type. Nobody is really deceived into believing that the whole house belongs to the poor fellow who has the first-floor front, or to the widow who has the back parlour, but it is a kind of amiable fiction that it might be supposed by their friends, if the poor souls have any, that this is the case. At any rate, a prosperous and successful artisan of their own class, if he did live in a house all to himself, would occupy one of these; and hence the feeling that being in a private house looks like prosperity. As we all know, a different feeling exists in Paris, and the lofty well-built houses of that capital are the outcome of it. If, either by the spread of better knowledge among the people, or in consequence of a good example set

by the middle or upper classes, a popular prejudice in favour of some sort of residence built to be let out in flats and rooms can be made to take the place of the prejudice against such residences which undoubtedly exists, it will be a good day for London. Cannot the approaching Social Science Congress take up this question? It is one not limited to London, but more or less calling for attention in many of our cities and large towns; and a change in public opinion is what is wanted. A DISTRICT SURVEYOR.

THE STATE OF MY HOUSE.

SIR,—After considerable trouble in looking over some dozens of modern-built residences in what is considered a salubrious suburb of the metropolis, I found one that seemed rather better than the others, and well fitted as a home for my little family.

Before taking it, I informed the proprietor that a stipulation that the sanitary matters were in order, or would be made so, was desirable. Well, after entering into possession, several obnoxious features were gradually disclosed, upon which it is the purport of this communication to seek advice.

If it had been a mere personal affair, affecting the pocket alone, I would not have ventured to inflict a detail of grievances upon you, but it concerns the health and well-being of little ones precious to me; and, moreover, my house is, I may vouch for it, only a type of many others, notwithstanding our boasted sanitary advance; and the question really belongs to tens of thousands. To proceed: in a day or two horrid smells pervaded the house at uncertain times, apparently issuing from beneath the basement floors and the scullery sink. On setting in action the valve of one water-closet a gust of vile air meets the face, whilst another closet is endowed with the property of perpetually evolving stench. The pipes of sinks are covered, of course, with the well-known bells dipping into an eighth of an inch or so of water. My water supply is rendered foul by contact with the metropolitan sewer, through agency of the ubiquitous waste-pipe of the cistern.

As to proper ventilation of apartments and underground low-ceilinged rooms, I have not found it, neither expected, that London builders had reached such a stage of reformation. The practical point is this,—that my landlord does not admit sanitary defects, and consequently will not remedy them. Now, does there exist any public authority to which I can, with hope of success, appeal for redress? Also, is there any Act of Parliament, and if so, under which clause can action be taken for nuisances within a dwelling from which private individuals suffer, and not the outside public? And lastly, if remedy does exist, practically enforceable, how may I avoid the consequences that may be anticipated on endeavouring to compel a stubborn landlord to perform his duty?

A HOUSEHOLDER.

THE PRICE OF BRICKS.

SIR,—A little more than thirty years ago there was a duty on bricks of 6*s.* 6*d.* per 1,000. Immediately on the bricks being packed in clamp for firing, the Excise officer entered the brickfield, took dimensions of the clump, and demanded the amount of duty, the manufacturer taking the risk of burning; and where the fire did not act the bricks were of an inferior character, and, being unfit for good work, were sold at a very reduced price. Under these circumstances men of slender means were unable to undertake such a business, consequently none but persons of capital could manufacture the article. Still, under these disadvantages, the price of bricks was little more than half their present price.

The duty at the time referred to being considered a burden on the community, and pressing heavily more especially on the working-classes, the Legislature, with the view of affording relief by reducing the cost of house-building, and consequently leading to a reduction in rent, determined upon taking off the duty: the consequence was that in the year 1854, when I was engaged in building some small houses at Millwall, Poplar, the stock bricks were charged, including water carriage, 25*s.* per 1,000; and place at 16*s.* I now find the same kind of article,—stocks, 45*s.*; place, 28*s.*

Now, how is this extraordinary advance in price to be accounted for? The manufacturer may plead the advance in wages, but that is not

a tithe of the amount pocketed by the manufacturers. The fact is, brick-making has become a monstrous monopoly, and it is high time something should be done to break it down; for, doubtless, it is the principal cause of much of the depression experienced in the building business at the present time. And were it not for the number of Board schools and public buildings now in hand we should have thousands of willing hands out of employment. When bricks were cheap capitalists found house property a good investment, but now find a better market for their money.

SURVEYOR.

ST. JOHN'S, STUTTGART.

THE architect of the St. Johanneskirche, Stuttgart (see *Builder*, p. 929), is Herr Oberbaurath von Leins, at present director of the excellent Technical School, the Polytechnicum. Among his works may be mentioned the Königsbau at Stuttgart and the King's Villa at Berg. Herr von Leins, besides being one of the first architects in Germany, is well known for his ability, painstaking zeal, and kindness, as professor in the Polytechnicum. Several of the rising architects of Württemberg have been trained in his office.

L. BRISBANE BROWN.

STRIKE OF BRICKLAYERS
AT MESSRS. DOULTON & CO'S NEW
BUILDINGS, LAMBETH.

At the corner of High-street, Lambeth, Messrs. Doulton & Co. are erecting a building about 35 ft. square and 110 ft. high, to be used as show-rooms and studios in connexion with their art pottery. On the Albert Embankment, about 200 yards distant, they are also erecting two large buildings, each nearly 85 ft. square and 100 ft. high. These buildings are being faced with red brick, considerably ornamented, especially the former, with red and buff terra cotta and Doulton ware in combination. Owing to the generally elaborate character of the terra-cotta at the High-street building it was found necessary to employ two skilled workmen to set it. At the buildings on the Embankment bricklayers have hitherto set nearly the whole of the terra-cotta, but here also it may be necessary to employ skilled workmen for some parts of the work.

The two terra-cotta fixers engaged were originally plasterers, but for many years past they have been chiefly employed in making and fixing terra-cotta. They fixed the terra-cotta at the late Turkish Baths, Victoria-street, Westminster (about sixteen years ago); at the South Kensington Museum, where they worked nearly two years; at the Horticultural Society's Gardens, South Kensington; and at various other places. Hence there is nothing new in their being now employed in fixing terra-cotta at these buildings. In fact, their trade is now that of makers and fixers of terra-cotta, and from their long practice and experience in this particular work they have acquired a skill and aptitude in it which bricklayers and others new to it do not possess. It is well known that articles in clay warp and twist in drying and burning. For this reason artistic care and precision must be brought to bear in fixing them, in order to produce and maintain continuous horizontal and vertical lines, and even faces. Where such is not exercised, the resulting work is generally unsatisfactory. The hand and the eye, in fact, must be trained to this work, the same as in other art-work, in order to arrive at perfection in it.

On Monday morning last all the bricklayers employed on these buildings struck work, without notice, until the two "plasterers," as they call them, who were fixing terra cotta at the High-street building, were discharged. On the same day, Mr. Coulson, secretary to the "Operative Bricklayers' Society," called at the Office on the works, and handed in the following letter:—

"Operative Bricklayers' Society,
Executive Council, General Office,
No. 25, Hatfield-street, London, S.E.

25th Sept., 1876.

"Messrs. DOULTON & Co.—We are informed by the bricklayers employed on your works that you have put plasterers to do the fixing of 'terra-cotta' in brickwork, which, being contrary to the custom of the trade, and being bricklayers' work, we, therefore, hope you will allow the bricklayers to set the terra-cotta with their ordinary work.—Yours respectfully,
E. COULSON, Gen. Sec."

The generally ornamental character and difficult nature of some parts of the terra-cotta in

all the buildings were pointed out to Mr. Coulson; and he was told that bricklayers, who had hitherto fixed nearly all the terra-cotta at the buildings on the Embankment, should continue to do so, but that for the particular and difficult portions of the work it might be necessary to employ skilled workmen such as those objected to. But neither reason nor argument in the matter appears to have had any influence with the "Operative Bricklayers' Society," who have decided that the bricklayers shall remain 'out on strike for the senseless object as stated above, and have picketed the works to prevent if possible other bricklayers being employed.

LYME REGIS, DORSET.

SIR,—The misplacement of a comma in my son's communication making it obscure to Mr. Skinner, the following letter will clear it up to himself and your readers. The death-rate for this town exceeding in numbers the total average for all England, warrants the assertion of an annual holocaust of victims; and can Mr. Skinner deny, in the teeth of my letter, that they are in effect, though not perhaps directly, poisoned?

THOMAS HAWKINS.

Copy.

"Lyme Regis, Sep. 4, 1876.

SIR,—In your last report of what ought to be called the insanitary state of Lyme Regis, you observe that 'the Inspector of Nuisances has not reported any nuisance during the year, but I cannot assert in consequence that there are none.'

It were amazing if you had, seeing that the town suffers from the decomposing shales on the foreshore east, and on the west from the as mephitic cement-works. I denounce them to you.

THOMAS HAWKINS.

Dr. D. S. Skinner,
Medical Officer of Health for Lyme Regis."

THE PNEUMATIC DESPATCH COMPANY'S
STATION AT ST. MARTIN'S-LE-GRAND.

LAST week the building materials of the Pneumatic Despatch Company's Station, situated in the yard of the General Post-office, St. Martin's-le-Grand, were sold by auction by direction of her Majesty's Commissioners of Works. The building, which was only recently erected, is at the entrance to St. Martin's-le-Grand and Aldersgate-street, and immediately opposite Newgate-street. It is faced with Portland cement, and has two frontages, at the corner of Cheapside and Aldersgate-street respectively, extending into the yard of the General Post-office, to a depth of about 36 ft. The building has been sold, for removal in consequence of the enterprise having proved a failure. It may be remembered that the company constructed tunnels or tubes between their station at the General Post-office, and the Euston Station, Oxford-street, and Camden-town, for the pneumatic conveyance of parcels to and from each of those points, but the trucks containing the parcels continually stuck in the tubes, the result being that the company's operations came to grief, and the project was, some time ago, compulsorily abandoned. The whole of the interior fittings were included in the building which has just been sold, and it is stated that the original cost of the whole was about 1,000*l*. The bid-dings of the sale, however, showed that a mere nominal value was put upon the property. The whole was sold in one lot. The first offer made was 5*l*., and the property was ultimately knocked down at 38*l*!

THE WARMING AND VENTILATION OF
CHURCHES.

HAVING read the letter in the *Builder* under the above heading, I agree with your correspondent that some more effectual method is needed.

There are only two systems generally adopted for heating large buildings,—those of hot air and hot water. In the former plan air is often passed over iron plates, or through the tubes of an apparatus heated by a furnace to a temperature of 590° or 600°. thence, by means of caliducts to gratings, whence it escapes into the building.

In the hot-water system, a pipe rises from the boiler, traverses the places to be warmed, and returns to terminate at the bottom of the boiler. Along this tube the heated water circulates, giving out its heat as it proceeds; if one part of the building is colder than another the heat can be increased by coils, or by increasing the number of pipes; thus, one 2-in. pipe, with a three-way-syphon, will feed three 4-in. pipes.

The heat can be regulated in any particular range of pipes by means of valves.

In the hot-air system, the number of gratings at which the heated air escapes is very limited, the air is super-heated, so that immediately it enters the building it disturbs the equilibrium of the atmosphere, causing an endless amount of draughts. The hot-water system, when not properly applied, is subject to the same difficulties. At a church near Manchester the clergyman always complained of a draught at the reading-desk. This was owing to the chancel not being heated, the pipes in the body of the church causing the air to ascend. As a natural law, the cold air in the chancel set in to supply the place of warm ascending air. This continued until alterations were made in the apparatus. A coil of pipes was placed behind the communion-table, the heat from which equalised the ascending current, and entirely dispensed with the draught.

To have an equable temperature in a large building, warm air should rise on every side; and I contend that it is absurd to expect to heat a church or chapel, calculated to seat 600 or 700 people, with the heated air rising from a grating 3 ft. square. Of course, the efficiency of any form of hot-water apparatus greatly depends on the boiler, which should be so constructed as to expose the greatest amount of surface to the fire in the smallest space, to absorb the heat from the fuel so that as little as possible escape up the chimney; to allow a free circulation for the water throughout the entire extent, and not be liable to get out of order by constant use.

In the hot-air apparatus the furnace soon burns away, as would a teakettle without water in it. The sulphur gets through the cracks to the air-flues, and thence into the building; then comes the expense of new apparatus, &c.

WM. WOLSTENCROFT.

WARMING HOUSES.

THE best method consists of an apparatus placed on the basement floor, and it may be fixed either *within* or *without* the building or house, being provided with a flue, to carry away the smoke arising from the fuel consumed in it. Around it, a chamber or hollow space is then built, leaving a small channel open at the base, through which the atmospheric air enters, becomes warm and rarified, and is admitted at pleasure into the different apartments by valves, which regulate the supply. Nothing can be more simple, or less liable to be deranged by time or accident. The area occupied need never exceed a square yard, and it may be fixed in a few days. To obviate any apprehensions that might be entertained from air heated by a metallic body, the air may be heated by passing over a surface of pure porcelain or earthenware, and by a small addition may also be rendered available for the fumigation of apartments, and the air supplied be impregnated with the requisite degree of moisture or perfume. Any kind of fuel may be used, and from the rapidity of the draught the flue never requires cleansing. This plan is recommended for theatres, barracks, public halls, churches, gaols, &c., and for all-sized houses.

JAMES BRUCE.

THE CANTERBURY PALACE.

SIR,—Favour us with space in your next number to mention that the elevation shown in your artistic engraving of this building in your issue of the 16th inst. (p. 905) was carried out by Mr. William Schofield, now senior member in the firm of

SCHOFIELD & Co.

Steam Stone Saw Mills.

"* We have received a letter from a correspondent, dating from Reading, claiming to have "done" (whatever that may mean), "under the late Mr. A. Bridgman, the Entrance of the Canterbury Palace; also the principal approaches, plans, and ideas, taken by me from Paris houses." We decline, as a rule to recognise such claims."

Paintings in Berlin.—With reference to our recent article on the Exhibition at Cologne, we are reminded that the fine mural paintings in the new Museum at Berlin are by the great Kaulbach himself,—Wilhelm Kaulbach, not his son. They are not frescoes, but paintings in the *wasserglass* (water-glass) process,—the process which was used by Maclise and Herbert in the Houses of Parliament.

PENMON PRIORY.

SIR,—Having had occasion recently to be in the neighbourhood of Penmon, in the county of Anglesey, I was informed that there was at that place a most interesting ruin,—that of an ancient priory; and that on the neighbouring island of Priestholme were the remains of a cell attached to the same.

I accordingly found time to visit the place, and found, as reported, some most interesting remains. The priory church is restored, and used now for divine service; and exhibits, particularly in the south transept and in the tower-arches, some fine Norman work. The other buildings, too, are most interesting,—one being a peculiar pigeon-cote of the time of Henry VIII. As my stay was very short, I could take no accurate dimensions, nor was there any one to supply information. I hope, therefore, that some one of your correspondents may be able to send some particulars of this most interesting ruin.

G. H.

TRADE CUSTOMS.

In the case, *Simpkin v. Ludlow & Whitley*, at the Wednesbury Police-court, the defendants are nut and bolt makers, of Darlaston, and were summoned by the complainant (late in their employ) for not supplying him with work according to contract.

Messrs. Ludlow did not deny the refusal to give the work out, but contended that, being short of orders, they, according to custom, were not compelled to find their men work.

Mr. Spooner, the stipendiary, said such a custom, if it existed, would be unjust and cruel; but, without entering into the custom of the trade, he had no hesitation in saying the law was on the side of the men, and he found for the complainant, on the ground that the notice formed part of the contract.

Judgment for the complainant, with costs against the defendants.

THE ENDOWED GRAMMAR SCHOOL AT ODIHAM.

This school was re-opened on the 11th inst., in the new buildings raised by the governors under a scheme framed by the Endowed Schools Commissioners. The site is in that portion of the town situate east of the church, and running parallel to the south of the High-street, known as "The Bury." The style is that of the Domestic Tudor Gothic, the material being red brick pointed black, with Bath-stone quoins, gable copings, finials, and door and window dressings. The roof coverings are old tiles, and the spirelet of the turret is surmounted by a gilt vane. The principal school-room, about 55 ft. by 20 ft., with open ribs sustaining the roof, plastered between the principals and purlins, is lighted by large traceried windows in the north and south gables, and two smaller windows to the east. There is a large classroom and dining-room, and these three principal apartments are finished in red brick with a struck white joint on a deep dado faced in Portland cement. The gas-fittings in the school and dining-room are by Hart, Son, Peard, & Co., of London. There are three lofty, well-ventilated and lighted commodious dormitories, lavatories, and bath-room, besides the master's residence, which is fitted for a moderate family. The original contractors were Newman & Son, of Winchester, for the sum of 3,295*l.*, but out-buildings and fencing have largely increased the amount. On the failure of the contractors, their sureties (Mr. H. W. Frampton and Mr. T. H. Burton, of Winchester) were called on by the governors to finish the half-completed works. Mr. E. Woodthorpe, of London, was the architect.

Books Received.

Encyclopédie d'Architecture: Revue Mensuelle. Paris: Morel & Co.

THE September number of this periodical contains, in addition to several of its ordinary engravings, twenty-three pages of lithographs, illustrating more or less the twelve designs for the proposed Paris International Exhibition Building, to which premiums were awarded. The author of each design has appended some brief descriptive particulars.

Miscellaneous.

Working Lads' Institutes.—On the 21st inst. a deputation, headed by Mr. J. E. Saunders, a member of the Corporation, waited upon the Lord Mayor at the Mansion-house, on the subject of working lads' institutes. They stated that the condition of the lads of London of thirteen years of age and upwards, engaged as apprentices, errand-boys, porters, and factory hands, deserved, as they thought, the earnest attention of philanthropists. Their day's work usually ended about seven in the evening, and they were not expected at their homes or lodgings until ten. In the interval where were they and what were they doing? Hundreds might be seen loitering about public-houses, while many more were in music-halls and theatres. The proposal of the deputation was to provide in different parts of the Metropolis "Working Lads' Institutes," which would form comfortable places of resort for the evening and supply pure and useful literature in the place of that which they found was now ruining so many. Each institute would be open all the evening, and associated with it would be a reading-room, library, class-room, a savings bank, and a clothing club. A register of "Situations wanted" would also be kept. The subscription would be nominal. It was proposed to start an experimental institute in Whitechapel, and it was estimated that the outlay in fitting it up and maintaining it the first year would be 800*l.* Towards this sum 200*l.* and upwards had already been subscribed. The Lord Mayor expressed the pleasure with which he listened to the proposals of the deputation, and agreed to grant them the use of the Long Parlour for a public meeting on Friday, the 27th of October.

The Asphalt Roadway in High Holborn.—High Holborn was closed against vehicular traffic on Monday last for the relaying of the asphalt by the Val de Travers Asphalt Company. The state of the roadway has lately been most dangerous to traffic, there being holes and "waves" almost throughout the entire length of the asphalt, which extends from near the end of Gray's-inn-road to a little beyond Chancery-lane, and the Holborn District Board of Works have had to serve notice on the company to put the roadway into proper repair, according to their contract with the Board, within fourteen days, which time expired about three weeks ago. The company have found that the only way to put the roadway into thorough repair is to take up the present asphalt and lay down new material on a different kind of bedding to that down. The thoroughfare will be closed for nearly three weeks. The present asphalt was laid down five years ago, at a cost of about 15,000*l.*, and the company contracted with the Board to keep it in proper repair for fifteen years for 100*l.* a year. It is believed that it has cost the company much more than this amount every year to put the material in repair, and yet it is continually getting into a bad state. The cost of laying the new asphalt will fall entirely on the company.

Mycenæ.—Dr. Henry Schliemann gives in the *Times* of September 27th interesting particulars of his latest excavations on the site of Mycenæ. After describing some of the things found, he says, in conclusion,—"In carefully examining these sculptures, I find in the representation of all the animals, but particularly in that of the horned one, so great a resemblance to the style of sculpture in the lions above the entrance-door, that I think they must belong to the same epoch, viz., about 1200 B.C. To the same time will probably belong all the Treasuries of Mycenæ, that part of the circuit walls at the Lion's Gate, and the gate itself. If, then, as we did at Tiryns, we fix the chronology of the idols with the birds' heads at 1400 B.C., this will probably also be the age of the circuit walls of carefully carved and fitted polygons, while that part of the walls which consists of huge boulders joined with small stones is probably contemporaneous with the walls of Tiryns, which we supposed to be of about 2000 B.C. Homer repeatedly calls Mycenæ πολὺ χρυσός (rich in gold), and the great wealth of the city is certainly confirmed by its numerous Treasuries and the costly style of their architecture. But the question naturally arises how the city obtained its gold at that remote period when there was no commerce as yet. It appears, indeed, that it cannot have obtained it in any other way than by powerful piratical expeditions to the Asiatic coast."

Antiquities at Amsterdam.—A correspondent of the *Morning Post* says that there is at the present moment an exhibition in Amsterdam which shows the popularity of antiquity hunting and collecting with the Dutch people. A well-known architect and antiquary of the town, he thought himself of starting a loan collection of antiquities, and when the owners came to be applied to there was an *embarras de richesses*. The Museum Van der Hoop, where the loan collection is exhibited, is a large building, but all its suites of rooms are filled with objects of the utmost interest, and its walls are crowded with pictures of the Dutch school, foremost among which figure the works of Rembrandt. There is what purports to be a *fac-simile* of the printing of Coster, whom the Dutch claim as the inventor of typography, though it is held to be very doubtful whether he used movable types at all. There is, of course, much old china, and ceramic ware of various kinds. Perhaps, however, the most interesting part of the exhibition is the rooms which have been fitted up exactly in the style of the sixteenth and seventeenth centuries respectively, and, moreover, with the actual furniture and ornaments of those epochs—old plate, old pictures, old carved cupboards, old ironwork, and old crockery.

Exhausted Parish Lands.—One of the last Acts passed in the recent session was to make provision for the disposal of certain lands appropriated for the supply of materials for the repair of public or private roads. Before issuing their order for the sale of exhausted or other lands, the Local Government Board are to hear and decide upon every objection and claim made within three months from the passing of the resolution for the sale, and shall either refuse to sanction the sale or allow it. Disputed claims may be settled by proceedings in the High Court of Justice, or, when the value in dispute does not exceed 50*l.*, in a County Court. In dealing with the produce of the sale the Board is to appropriate the same as far as practicable to the repair of highways, or in some permanent improvement of the highways, or to direct the same to be invested; "and the said Board shall have the like power of dealing with the produce of the sale of lands under the Highway Acts, if applied to by the surveyor of highways, or any authority exercising the powers of such surveyor, where such produce cannot be conveniently appropriated in the manner provided by those Acts." The word "parish" has a large application as to highways in this statute.

A Chain for Melbourne.—In recognition of public services rendered by Councillor A. K. Smith, Mayor of Melbourne, a number of his private friends and fellow-citizens have subscribed the amount necessary for the purchase of a mayoral chain. A departure from the usual course has been made in this instance, and instead of waiting until Councillor Smith's year of office expires, the chain was presented in sufficient time to permit its being worn for at least one quarter of the term. The chain has been manufactured by Messrs. Joseph Brothers, from the design of Mr. J. B. Cohen, A.R.S.A. It consists of a chain of long band-like links, divided into two at the lower part, and supporting five lockets, graduated in size, of Gothic design, of the *vesica piscis* form, and bearing in open floriated letters the inscription "Mayor of Melbourne, 1875-1876." It has been manufactured entirely of 18-carat gold, and weighs 21 oz.

The Proposed New Hospital for Wakefield.—A day or two since, the committee of the Clayton Hospital and Wakefield General Dispensary met in the Board Room, at the present hospital, for the purpose of accepting tenders required for the various works in connexion with the proposed new hospital. Some time ago the committee purchased for 4,500*l.* about two acres of land near St. John's, belonging to Mr. R. B. Mackie, and upon this land is intended to be built a new hospital, from the designs of Mr. Bakewell, Leeds, at a cost of nearly 14,000*l.*, exclusive of the site. About 14,000*l.* have already been raised towards the new building. Tenders were accepted for the various works, which are to be proceeded with as soon as possible.

Industrial Exhibition at West Hartlepool.—On the 21st inst. an exhibition of fine arts, industrial products, natural and artificial curiosities, models, paintings, &c., in connexion with the local lodges of Good Templars, was opened in the Athenæum, at West Hartlepool, by Mr. I. L. Bell, M.P.

Overcrowding at Maidstone.—When the London, Chatham, and Dover Railway built their station at Maidstone, about fifty houses were pulled down, and the inhabitants were forced to seek shelter elsewhere. The overcrowding in small houses which resulted from this wholesale demolition was evil in every way, and now we learn that these evils will be intensified, inasmuch as the house property between the London and Chatham station and the Brigade Depot Bar-racks will shortly be pulled down, without any provision being made for the tenants. It is (as the *South-Eastern Gazette* remarks) a pleasant thing to see "people dwell together in peace," but to get three families in a small house would be neither pleasant nor peaceful. Unless something, however, is done, human gregariousness in small houses will soon resemble the domestic economy of the rabbit family. The question is, however, what is to be done? Houses of the description required scarcely pay the speculative builder for his outlay. Our contemporary suggests that the local Cottage Improvement Society should enlarge its basis of operations, in order to meet the difficulty.

Noxious Vapours at Warrington and Widnes.—The Royal Commission to inquire into the noxious vapours caused by chemical and other works begins its operations in Warrington and Widnes the first week in October, under the presidency of Lord Aberdare. Dr. Richardson has been engaged during the last few days in collecting evidence for the commission, and in order to give the commission a most complete detail of the alleged injuries caused by the noxious vapours to the crops and land, the landed proprietors of this part of the county have subscribed over 1,500*l.* to be devoted to the collecting of evidence and other incidental expenses connected with the commission. The Warrington Town Council have resolved to obtain an injunction against the Bank Quay Spelter Works for creating an offensive effluvia detrimental to vegetable life in the locality, and the company have asked for an extension of time in which to obtain an apparatus to remove the nuisance complained of. The Council have granted them a period of six months, but upon the distinct understanding that during that time the offensive manufacture must be entirely stopped.

Hard Water.—At the meeting of the British Association at Glasgow, Professor Wanklyn read a paper "On the Effects of the Mineral Substances in Drinking Water on the Health of the Community." In the course of the discussion which followed, Dr. Carr observed, with respect to Kent water, which was very hard, that it contained a large percentage of lime, and was very wholesome for young persons. The children of Kent were singularly straight-legged, and it was well known that lime readily assimilated in the system and created sound bone. Professor Wanklyn said that Kent water was, as a rule, as pure organically as distilled water. Hard water was, it was true, good for children, as they required lime in various shapes, but it was very doubtful whether later in life hard water was so good for those who partook of it. In reply to Mr. Groom Napier, Professor Wanklyn said he had heard that hard water introduced goitre, but he could not say that was so without further inquiry.

Discovery of an Ancient Celtic Inscription in Shetland.—The *Scotsman* says that a remarkable antiquarian find has been made by the Rev. J. C. Roger, of Lerwick, while on a visit to the parish of Luinastig. He observed in the possession of a cottar a stone with an inscription, which a closer inspection showed Mr. Roger to be distinctly Ogham. The man stated that he had recently come upon it 5 ft. below the surface in a peat moss, a considerable distance from any habitation. Mr. Roger obtained the stone, and has it now in his possession at Lerwick. Its length is 3 ft. 8½ in.; breadth, 1 ft. 1 in.; thickness, 1½ in. The inscription (which is in admirable preservation) is cut on one of the flat sides, and runs almost down the centre, arranged on either side of an incised line. There are thirty-eight separate characters, and from the appearance of the stone itself and the engraved marks, the inscription appears to be intact.

The Esplanade at Ryde, Isle of Wight. The Ryde Town Council has just passed a resolution for a joint application of the Council and the St. Helen's Board to borrow funds to extend the esplanade to Sea View, which, it is estimated, would cost nearly 23,000*l.*: of this about four-fifths would fall upon Ryde.

The New St. Vincent's Bridge, Cork.—The Cork Town Council, on the 15th inst., selected the design of Mr. Francis O'Connor, C.E., Ennis, Co. Clare (motto, "Resurgam"), for the new St. Vincent's footbridge to span the Lee from Grenville Quay to the North Mall. There were thirty-six competitors. Mr. O'Connor's design (to which a premium of 50*l.* was awarded) consists of a continuous lattice girder supported on two sets of cast-iron cylinders, screwed into the bed of the river, dividing the span into three bays, the centre opening being 80 ft., and the two side openings 29 ft. each, with four ornamental cast-iron pillars at the ends of girders, and over each of the centre piers. The roadway is formed by cross girders, having patent road plates fastened on them, the whole covered with cement concrete. Estimated cost complete, 1,120*l.* Messrs. Walker & Ring, civil engineers, acted as professional advisers in the selection of the design.

A Neglected Burial Ground.—Attention has been drawn to the disgraceful condition of the disused burial-ground of St. James's, Piccadilly, situate in the Hampstead-road. Dr. Eastes, the medical officer of health of St. Pancras, found on visiting the burial-ground in question that it was in a very neglected condition, being overgrown with rank weeds, whilst the tombstones and monuments which are erected in different parts of the ground are passing rapidly into a state of decay, without any attempt to save them being made. Close to the edge of the ground where it is bordered by houses, the inhabitants have evidently considered the "neglected spot" as a convenient dust-bin, and have consequently thrown refuse of all descriptions into it.

Playgrounds for Children.—It ought to be generally known, says the *Lancet*, that the playgrounds of all Board schools are open to the children of the poor in the summer months, after school-hours. It would also be well if the time were extended, and the police were instructed to make the parents of the little creatures who crowd the courts and alleys of great cities acquainted with the boon provided for them. Not only is life endangered, and too often sacrificed, by the habit of allowing children to play in the streets, but the risk induces many of the poor to keep their children in-doors, or turn them into dark and dismal back-yards, where the healthful conditions essential to growth and development are impossible.

Cremation in Germany.—A Berlin correspondent states that the municipality of Gotha have, by permission of the Ducal Government, allowed the introduction of cremation, and accepted a sum of 15,000 marks offered by the Cremation Society for the purpose of building in the new cemetery an oven on Siemens's principle. From the statute simultaneously drawn up we learn that cremation can either take place at the express wish of the deceased, or of his relatives, on the district doctor having attested that death has ensued by natural causes. The ashes will, after cremation, be collected in an urn and either handed over to the relatives or preserved by the authorities in a place appropriated for them in the churchyard.

Interesting Discoveries near Thirsk.—The *Darlington and Stockton Times* states that within the past few days some interesting relics have come to light during the progress of the restoration of All Saints Church at Pickhill, near Thirsk. During the progress of excavating in the chancel, a large figure of a knight in chain armour and cut in stone was found face downwards just below the pavement. The figure has its legs crossed. The arms are over the breast, together with a shield and a sword, and it is supposed to belong to the early part of the thirteenth century. An Anglo-Saxon Memorial Cross and stones of Anglo-Saxon date have also been discovered, as well as a representation of the Day of Judgment in colour on the walls.

The Royal Academy.—The *Athenæum* understands that a Committee of the Royal Academy is shortly to be formed to take into consideration the better lighting of the exhibition-rooms in Burlington-gardens, and with a view to the immediate improvement of one or more of the rooms in that respect, so that the work may be completed for the next exhibition. The rumours, which have been frequently spread of late, that there would be no more exhibitions of old masters' pictures by the Royal Academicians, are, so far as the coming winter is concerned, incorrect.

The Prince's Indian Collection.—The exhibition of his Royal Highness the Prince of Wales's loan collection at the India Museum, South Kensington, closes to-day (Saturday). In order to give the inhabitants of the East End an opportunity of seeing the Indian presents, his Royal Highness has directed that they should, on their removal from the India Museum, be exhibited for two or three months in the Bethnal-green Museum. His Royal Highness has further instructed Lord Lyons to communicate to the Duc Decazes his Royal Highness's intention to exhibit his Indian collection at the French Exhibition of 1878.

Kent Archaeological Society.—The council of this society have resolved to hold their next annual meeting in Thanet. It is expected that the gathering will take place in July. The programme will include a visit to the Reculvers (the ancient Regulbium), Minster Church and Abbey, and, if possible, the spots connected with the supposed landing of Hengist and Horsa, together with that of St. Augustine, at Ebbs Flete, and Cotington. Lord Granville has expressed his intention of erecting some appropriate monument on the site of the oak under which St. Augustine is traditionally supposed to have first met King Ethelbert, and which is included in a field recently acquired by his lordship.

A Good Templars' Hall at Broton.—On the 18th inst. a Good Templars' hall was opened at Broton. It is in the Italian style of architecture, and consists of a large hall for public meetings, a spacious lodge-room, reading-room, and committee-room. Adjoining is a dwelling-house for the hall-keeper. The entire cost is 1,600*l.* The architect was Mr. Hunter, of Middlesbrough; and the contractors Mr. John Dixon, Saltburn; Mr. James Peak, Broton; Mr. Boddy, Loftus; and Mr. Dickenson, Middlesbrough.

Asphalte.—The tender of the Brunswick Rock Asphalte Paving Company was accepted for paving the floor of Messrs. Gilbey's new wine premises, Chalk Farm-road. The ground-floor of this warehouse contains 21,150 superficial feet, and is laid with 1 in. Brunswick Rock asphalte, and 6 in. concrete, especially for bottling wine. Mr. John Carden, of Acton, is the contractor, and Mr. S. Mead foreman of works. The floor is nearly completed.

Medals.—To Messrs. Chubb & Son, London, whose exhibit of fire-resisting safes and gun-powder magazines attracts considerable attention at the International Exhibition, Brussels, a medal and an honourable mention have been awarded. —Mr. Joseph Hamblet, of West Bromwich, whose exhibit there of blue bricks we had occasion to mention, has also received a silver medal. —And so has Mr. Gordon, C.E., of whose plans, &c., we spoke.

Exhibition of Sanitary and Educational Appliances.—Such of our readers as propose to apply for space in the Exhibition about to be opened in Liverpool in connexion with the Social Science Congress (Oct. 11th), should do so immediately, as the applications are already numerous enough to fill the greater part of the available area. The Mayor of Liverpool will probably be invited formally to open the Exhibition.

By Railway to Central Asia.—The Russian Government is pushing on its new railway works, which are to connect Europe with Central Asia, with great vigour. It is announced that the construction of the new line from Samara to Orenburg is making such rapid progress as to make it probable that it will be fit for traffic as early as December. The line will then have been carried up to the boundary separating Europe from Asia.

A Japanese Appointment.—Mr. R. A. Biggleston, who has filled the position of practical engineer at the Royal Harbour, Chatham, under the Board of Trade, for the last ten years, has been successful in obtaining an appointment under the Imperial Japanese Government at Yokohama, Japan, as inspecting engineer of lighthouses, at a salary of 400*l.* a year.

Birkbeck Literary and Scientific Institution, Southampton Buildings, Chancery-lane.—The fifty-fourth session of this Institution will commence on Monday next. The Chancellor of the Exchequer has consented to preside at the fifty-third anniversary and distribution of prizes, which will be held at the beginning of November.

Church Extension in Leeds.—At a meeting of Churchmen, held in Leeds a few months ago, it was determined to raise a fund of 100,000l. towards church extension in the borough. Of this amount nearly 60,000l. have already been contributed, and the sites of several new churches to be built in various parts of the town have been procured.

Temple Bar.—The City Corporation has, by 69 votes to 45, resolved to remove Temple Bar, with the exception of the northern and southern walls, postponing for future consideration how the boundary of the City's jurisdiction at that spot shall be marked.

White Lead direct from the Ore.—Mr. J. C. Martin has invented a process for the manufacture of white lead direct from the ore. The *Mining Journal* says that the new product is completely amorphous, of good colour, and will doubtless find a ready market.

London University College.—We are asked to state that though the session begins on the 3rd prox., as named in our recent paragraph on the subject, the architectural lectures are not to commence till Thursday, the 17th prox.

Society of Engineers.—At the first ordinary meeting of the Society for the session, to be held on Monday, the 2nd of October next, a paper on "Stone Sawing Machinery," by Mr. Henry Conradi, will be read.

American Slates.—In reply to our correspondent, "R. W.," we believe Messrs. G. Guy & Co., of Lombard-street, are the chief importers of American slates in this country. Samples can always be seen at their office.

Chatham College of Military Engineering.—Mr. T. Roger Smith will, during the ensuing winter, give a short course of lectures on architecture to the students of the College of Military Engineering at Chatham.

TENDERS

For completion of house at Wallington, Surrey:—
Broadbridge £550 0 0
Ridge & Kingsland 648 0 0
Owen 447 0 0

For grammar school at Mansfield, Notts. Messrs. John Giles & Gough, architects. Quantities by Mr. C. H. Goull:—

Hodgson & Facon £10,547 15 6
Stephenson 10,157 0 0
Slight & Hind 10,007 0 0
Kirk & Parry 9,386 0 0
East 9,270 0 0
Bell & Son 9,168 0 0
Marriott & Co. 8,800 0 0
J. & W. Pattinson 8,255 0 0

For erection of vicarage-house, St. John the Evangelist's, Brownwood Park, Hornsey. Mr. Ewan Christian, architect. Quantities supplied by Messrs. J. & A. E. Bull:—

Colls & Son £1,746 0 0
Brass 1,690 0 0
Ennor 1,620 0 0
Dove Brothers 1,675 0 0
Manley & Rogers 1,667 0 0
Adamson & Son 1,645 0 0
Williams & Son 1,640 0 0
Tyerman (accepted) 1,634 0 0

For main drainage (districts A and B), Southampton, Mr. James Lemon, engineer. Quantities by Mr. J. G. Poole:—

Bull & Sons £2,564 0 0
Crook 2,544 0 0
Hayter 2,500 0 0
Nichols 2,402 0 0
Stevens (accepted) 2,256 0 0

For the erection of two houses, for Mr. Gruning, at Beulah-hill, Norwood. Mr. W. E. Browne, architect:—

Brealy £2,673 10 0
Taylor & Son 2,537 0 0
Colliver 2,465 0 0
Beadle 2,211 0 0

For building St. Martin's Vicarage, Brighton, for the Rev. R. T. Salmon, M.A. Mr. Somers Clarke, jun., architect:—

Deacon £3,980 0 0
Lockyer 3,925 0 0
Cheesman & Co. 3,690 0 0
Lynn & Sons 3,635 0 0
Patching & Webber 3,545 0 0

For a detached house at Sutton, Surrey, for Mr. Nye. Mr. H. R. Cotton, architect:—

Keal £1,260 0 0
Cuff 1,259 0 0
Tomkin 1,143 0 0
Potter (accepted) 1,043 0 0

For alterations at the Duke of Norfolk public-house, Westbourne-grove, for Mr. Anstis. Mr. J. C. Dear, architect:—

Bryant £600 0 0
Cohen 556 0 0
Lamble (accepted) 514 0 0

For repairs and decorations at the Yorkshire Sting public house, for Mr. James Bennett. Mr. W. Nunn, architect:—

Hanley £193 0 0
Lamble 153 0 0
Cole 134 0 0
Grimwood & Sons 134 0 0
Coney 107 0 0

For the erection of a detached house at Enfield, Middlesex, for Mr. Henry Cox. Mr. W. J. Worthington, architect:—

Cowland £2,270 0 0
Lamble 2,153 0 0
Patman 2,060 0 0
Linzell & Son 1,800 0 0

For new schools, for the London School Board, on Queen's Park estate, Harrow-road. Mr. E. R. Robson, architect. Quantities by Messrs. Northcroft, Son, & Neighbour:—

Grover £9,712 0 0
Pritchard 9,367 0 0
Kilby Brothers 9,291 0 0
Williams & Son 9,234 0 0
Crockett 9,035 0 0
Tongue 9,120 0 0
Wall Brothers 8,977 0 0
Boyes 8,949 0 0
Aitchison & Walker 8,879 0 0
Hook & Oldrey 8,850 0 0

For alterations, additions, and repairs, to Batt's Hotel, Dover-street, Piccadilly, for Mr. B. Rawlings. Mr. Charles Sewell, architect. Quantities supplied:—

Howard £2,293 0 0
Stimpson 2,235 0 0
Newman & Mann 2,170 0 0
Scott 2,157 0 0
Higgs 2,069 0 0
Curtis 1,970 0 0

For the erection of a villa residence at Chislehurst, Kent, for Mr. Owen Edwards. Mr. Joseph S. Moye, architect. Quantities supplied:—

Manley & Rogers £1,780 0 0
Keyes & Head 1,589 0 0
Newman & Mann 1,589 0 0
Grover 1,423 0 0

For the erection of a Baptist Chapel at Lower Norwood, for the Building Committee. Messrs. Edmond Power & Wheeler, architects. Quantities supplied by Mr. Walter Barnett:—

Cook & Green £9,031 0 0
Aitchison & Walker 8,534 0 0
Hill, Higgs, & Hill 8,511 0 0
Ward & Son 8,100 0 0
Bayes Brothers & Allen 7,863 0 0
Tarrant & Sons 7,612 0 0
Dove Brothers 7,396 0 0
Colls & Son 7,095 0 0
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Bracher & Sons 6,356 0 0

For taking down and rebuilding No. 2, Royal Exchange-avenue, for Mr. Reuben Hibberd. Mr. John Whichcord, architect. Quantities supplied by Mr. W. Barnett:—

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Jackson & Shaw 7,458 0 0
Phelps & Bialker 6,995 0 0
Clarke & Bracey 6,934 0 0
Ashby Brothers 6,761 0 0
Ashby & Horner 6,715 0 0
Maey 6,660 0 0
Newman & Mann 6,441 0 0

For the erection and completion of eight houses and shops fronting High-street and Kentish-town-road, Camden-town, exclusive of excavating site. Quantities supplied by Mr. F. Thomson. Mr. H. H. Bridgman, architect:—

Wall Brothers £7,531 0 0
Manley & Rogers 7,313 0 0
Crockett 7,290 0 0
Scrivener & White 7,178 0 0
Niblett & Son 7,172 0 0
Kelly Brothers 7,037 0 0
Grover 6,998 0 0
Willson Brothers 6,964 0 0
Hunt (accepted) 6,500 0 0

For the erection and completion of two houses and shops, Kentish-town-road, at the corner of Union-terrace, Camden-town. Quantities by Mr. W. Barnett. Mr. H. H. Bridgman, architect:—

Hunt (accepted), schedule.

For the erection of a pair of semi-detached villas, Tooting-road. Mr. Alfred Wright, architect. Quantities supplied:—

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The Builder.

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SATURDAY, OCTOBER 7, 1876.

ILLUSTRATIONS.

The Ofen Palace of the Future, Hungary

The Volksgarten Arcade, Vienna.—Baron Hasenauer, Architect

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Street Architecture: Social Aspects.



OR the Social Science Congress to be held next week in Liverpool, a new feature has, as our readers are aware, been introduced into the programme, by the formation of an Art Department, in which papers will be read relating especially to the influence of art upon society in its material and mental conditions. This idea of an art department may or may not be a permanent ex-

tension of the scope of the Social Science meetings. In the present year it is a local ordination, suggested apparently by the fact of the approaching completion of the Art-Gallery in Liverpool, and the stir which has recently been made about art in that centre of commercial enterprise. Among those who are responsible for the success and utility of these annual meetings there is, we believe, a fear lest discussions on art, if once admitted as a permanent part of the scheme, should drift into considerations quite foreign to the original objects of the Congress, and of very doubtful practical utility; nor can we say that such fears are groundless. But so far as architecture and what may be called domestic art are concerned, we cannot see but that these subjects have a proper *locus standi* at a Social Science meeting, considering that they are so much connected on the one hand with science (sanitary science especially), and on the other hand with social well-being in one at least of its aspects.

The heads under which art is to be considered at the Congress next week are four:—1. As to the best methods of securing the improvement of street architecture, especially as regards its connexion with public buildings; 2. As to the encouragement of mural decorations, especially frescoes; 3. The influence of academies on the art of a nation; 4. The influence upon society of decorative art and art-workmanship in all household details. The first-named subject is one which naturally connects the art section with the main objects of the Congress, and therefore very fittingly stands first. For the improvement of street architecture depends in a great measure upon considerations which are in the strictest sense scientific and social. Before anything can be done with the improvement in the picturesque of street architecture upon a satisfactory basis, it must first be seen that the method of building fulfils the conditions of health as nearly as can be arrived at. And the increased expenditure upon really sanitary building, over what is now expended upon average street architecture, would in a great many cases run away with all the funds which might be available for decorative building, consistently with a remunerative expenditure. For it is to

this last economical question that the improvement of street architecture must in the end return. Even if the great work were accomplished of scotching the lower class of speculating builders, and getting house-building into more honourable and less greedy hands, there must still remain the fact that the great portion of street architecture in towns must consist of structures on which capital is expended in order to get a return for it in the shape of a respectable interest on the outlay. Every man cannot build his own house, for his own comfort and after his own taste; the building capitalist is a necessity, and his existence is dependent on his getting his percentage. What sort of result those conditions have led to we know very well: houses ill-built, ill-ventilated, ill-drained, the only object of which, in the mind of their builder, is that they should look well enough externally to tempt persons who are able to pay the required amount of purchase-money or rent. In some cases, perhaps, the builder gets a disproportionate profit, and he is then, at least, morally responsible (if he ought not to be considered so in all cases) for having deliberately fabricated dishonest and rickety buildings, to the injury of the public health. But, considering the influence of competition, we may perhaps assume that the speculative builder in most cases puts his rents as low as he can afford to do with any reasonable profit to himself. There is therefore to be deduced the uncomfortable corollary, that the amount of expenditure on average street dwellings at present is not sufficient to render them properly healthful and permanent structures; and that the additional funds will have to be found by the public, unless they can be met by any more economical and yet sound and satisfactory method of construction.

In regard to this latter alternative there is certainly not much to hope for. The question of concrete building, which seems the only important suggestion for a change on a large scale in the method and material of average house-building, has been thoroughly considered of late, and its discussion seems at least to have established the fact that any material gain in the way of economy by the constructive use of concrete is out of the question; that, in short, good concrete building, like good brick building, costs money; and the cost of the subsidiary drainage arrangements, &c., is the same in both cases. Nor can it be said that the use of concrete would help us at all in the direction of pleasing or picturesque effect in our streets, however it may be susceptible, in certain cases and with a good deal of care and trouble, of special decorative treatment. The one way of reconciling the two requisites of economy and solidity in ordinary house construction seems to us to lie in the direction of the kind of combination of tenements within one set of walls, the advantages of which for modern town building we have discussed pretty fully. Such a system presents a chance for making solid, building and thorough sanitary arrangement remunerative, by realising a more economic distribution of material in proportion to the

number of tenements, and at the same time dividing the increased expenditure more evenly between owner and tenants than would be possible on the separate-house system to which habit has wedded us; though with a proper construction* the separation of tenements can be almost as effectually maintained, if not quite, as when every house rises from the ground as a separate structure. It is, as has been before pointed out, little more than the difference between vertical and horizontal dividing-walls. The necessity for greater concentration of dwellings, in some way or other, in our large towns, is another argument in favour of this system. Some of the "diseases of modern life" have been traced to daily journeys to and from the place of business.

The same system which would, as we believe, enable sound construction to be carried out economically, would also on the same grounds open the door for a more decorative and architectural treatment of the dwellings suitable for those of moderate means who form so large a proportion of the inhabitants of town houses. In regard to the architectural treatment of the better class of street houses and of street architecture generally, this of course would come under the same influences as to style which are operating, or may operate, upon the architecture of the country at large. There are, however, one or two considerations which specially touch street architecture. Being composed almost entirely of buildings in which the utilitarian element is predominant, street architecture is necessarily bound up, or should be, with utilitarian and practical considerations. It is of no real service, for instance, to talk about "sky-line," and to make numerous pointed gables to the street, to emulate the effect of Mediaeval towns, if it can be shown statistically that such a method of roofing is neither economically nor practically the best for modern purposes or for safety; a hint which is further applicable to other points in modern street architecture. And, on the other hand, there can be no doubt that too much legislation on street architecture has often an unnecessarily injurious effect upon the aspect of modern streets, cramping and effacing individuality of taste or the application of special design to special ends. In the present condition of building morality, Building Acts are an absolute necessity; but they should be so framed as to leave as free a course as possible for variety of architectural treatment, concerning themselves rather with ensuring that what is built shall be well built or constructed, than with imposing limits on new or varied ideas in the arrangement and design of structures. How prejudicial the influence of Building Acts is to the picturesque aspect of a town there can be little doubt; indeed, if we were to take, say, one of Prout's views in a North German town, full of picturesque and piquant incidents of building, and were to copy it, omitting everything that a London or Liverpool Building Act would forbid,

* Sound construction and scientific arrangement are, however, absolutely necessary to make anything satisfactory of a combination of tenements in one structure; and the hand of the architect rather than of the jerry-builder is required in the matter. When we speak of the speculating builder being a necessity in average house-building, of course we mean merely the capitalist who invests his money in this way, and who is very often also the builder in the more literal sense.

we should probably find that almost the whole charm had vanished under the process.

In the discussion of this question the difficulty thrown in the way of solid and noble building by the prevalence of short leases must not be forgotten. In former times houses were built to last as long as was possible; they were to be "possessions for ever." In the present day, as Carlyle said (contrasting the brickwork of his own house in Cheyne-row with that of the modern builder's "desirable residence"), the bricks are evidently made to last out the leases, and no more. There is no doubt that the more rapid changes and shifting in the nature and value of modern town sites render it difficult to determine, sometimes, where a permanent building can be erected with security for its future; but it is much to be regretted that a system of tenure should prevail which actually suggests temporary and ephemeral rather than permanent and solidly-built structures.

The question of street architecture is, in the prospectus of the Social Science Congress, qualified by the words "especially as regards its connexion with public buildings"; a rather vague phrase, the import of which is not quite clear. If it refers, however (as grammatically it certainly does) to the relation between street arrangement and the placing of public buildings, that is an important subject in connexion with the realisation of architectural effect in towns, and one which with us is much neglected. Buildings constantly lose, in English towns, half the effect they might otherwise have, through the neglect to place them so as to be effective, or even to arrange street lines so as to provide for them the possibility of an effective site. As the Congress will meet at Liverpool, it is not inappropriate to instance the injury done to what, with all its mistakes, is no doubt the finest building there, St. George's Hall, by its having been built so as to front up hill instead of down hill. The effect formerly was to put the building in a complete hole, as seen on its principal (eastern) flank; and though this has since been altered by raising the platform on which the building stands to a level with the adjoining street, this has only been at the expense of the loss of the lower half of the great flight of steps which, according to the architect's idea, was to lead up to the portico, and form a kind of eminence for the building to stand upon. One difficulty in relation to the placing of public buildings is that it so frequently happens that a site is arranged, and a square or a group of streets laid out, before there is any decisive idea as to placing a great building on the ground; and it has afterwards to be placed, not as well as it might be, but as well as it can be under the circumstances. This is sometimes unavoidable, but not always; in some cases a certain amount of forethought is all that is necessary to ensure a fine effect which, once the opportunity let slip, can never be secured. Whenever changes in the lines of route in a town take place, or a new line of streets or a new square is planned, there should be some thought taken as to the possible use that may be made of the site for a large building, some effort to provide adequately and effectively for what is likely to be done. There is more thought given to this in London than there used to be; we have noticed no indication of a similar foresight in large provincial towns, however.

The question "how best to encourage mural decorations, especially frescoes," which forms the second section in the Art Department, is one of great interest. We have so long urged the desirability of bringing art into the council chamber and the market-place, that we are not likely to be misunderstood if we warn enthusiasts against expecting too much at first from such a proceeding. But it must not be forgotten that the deliberate effort to revive art by the revival of this or that process is a very different thing from the existence of art as a living reality, a natural growth of the time. In the Italy of the fifteenth century the demand for art of the type indicated was a part of the very life of the people; the artist's work was produced because he needs must produce that which was in him, and because the whole people looked to him for what was almost a necessity of life as then existing. Browning, who more than any other contemporary mind in this country has realised the spirit of the days of Italian art, has suggested in a few picturesque lines the kind of inevitable and spontaneous out-growth of art which characterised the Florentine life of that period, in the passage where Luria, the Moorish commander of the Florentine troops, complains that, once

peace restored, his merely military genius will have no place or recognition any longer:—

"Florence at peace, and the calm studios heads
Come out again, the penetrating eyes;
As if a spell broke, all resumed, each art
You boast, more vivid that it slept awhile,
'Gainst the glad heaven, o'er the white palace-front,
The interrupted scaffold climbs anew;
The walls are peopled by the painter's brush;
The statue to its niche ascends to dwell."

The real business of life (which painting, especially, was in those days) goes on spontaneously the moment the temporary pressure of war is removed. The artist desired then, as we desire for him now, opportunity to display his power on a great scale; but the demand was not then made on the plea that such opportunities would encourage and foster art and what is called "a taste" for art: it was made because the art was there in presence and in power, and demanded room for its exhibition, and would take no denial. The question of the suitability of fresco-painting for this climate is still in an inconclusive stage; but without considering that point, which does not affect the broad principle of the matter, it is well to recognise the truth that the re-development of mural decoration of this type, though it would assist in raising and stimulating public taste for pictorial design, and afford to some highly-gifted modern artists opportunities which they well deserve to have, cannot be expected, in the nature of things, of itself to revive the spirit of the great age of painting, because it is, in fact, the reverse process of that which produced the glories of Italian art; it is not the spontaneous expression in painting of the desire of the heart and of the eyes, it is the artificial grafting upon the modern mind of the external expressions of art, in the hope that thereby the modern mind will be attuned to and brought into harmony with them. This in itself would be much; but the process is one which is apt to include what is artificial and unreal, as indeed we already see in attempts that have been made to popularise art in this fashion. We have, for example, external pictorial decoration of buildings in tiles, or occasionally in mosaic, in which figures in the garb of another age are delineated, with the intention of illustrating the purpose of the building. This is very much the kind of thing which was done when painting was the universal exponent of the mind of the people; only then the costumes of the day would have been used, which were picturesque, as life itself was picturesque in a sense in which it no longer seems to be: now, the whole thing seems to most people an anachronism, and instead of exciting admiration and public interest, this kind of pictorial decoration seems to be merely regarded as an odd whim, and is usually the object of wonder or of a few facetious comments from passers-by, who stop to inquire what is the meaning of it. One practical or semi-practical obstacle to giving to such artistic work a real interest lies in the unpicturesque character of modern costume, which leaves the artist in the dilemma of either making his group merely archaeological, or of dealing with shapes and hues the most unfitted for painting, and for decorative painting in particular. We hope suggestions will be made at the Congress which will bear on these difficulties in the way of resuscitating what was once an art of real and vivid public interest: we must wait to see.

Nothing seems to be specially suggested in the programme of the Congress as to the development of sculpture as an accessory to the art of cities; yet, in relation to public buildings especially, there can be no art more important in its bearing upon architectural effect on a great scale. The mischief has too often been that when sculpture has been made an important element in an architectural design, it has been used too profusely, and executed with too little regard either to the intellectual interest or the executive excellence of the work. Sculpture may no doubt be used in a merely decorative manner to produce an *ensemble*, without challenging too much attention to the expression and design of individual figures; but this is not using it in a very worthy manner, and the art under these circumstances is in fact very liable to degenerate into mere stone-cutting. The ideal of sculpture in association with architecture seems to be that it should be (unless almost unlimited funds are forthcoming) rather sparingly employed, but in its highest form, as the culminating interest at some important points of the building. To scatter a number of mediocre figures over a building to produce an effect is a very unsatisfactory expenditure of means and

material and labour. There may be opportunities, however, though but rare in these days, for employing the higher forms of sculpture without stint upon the decoration of a great building. One such opportunity exists which there is a special suitability in calling attention to at this moment. Whilst the question of art in relation to public buildings is being debated next week at the Social Science Congress, it may perhaps hardly occur to most of those who are to be engaged in carrying on the discussion, that the building in which they will meet is one of those which most imperatively demands and offers opportunity for the application of the art of the sculptor. Although St. George's Hall at Liverpool has for a quarter of a century been considered by Liverpool people the great architectural boast of the town; though it is admitted by less partial critics to be the finest instance of the application of Greek architecture to a modern building, it has remained all this time incomplete, and that in a most important point. Its exterior is almost entirely deficient in the sculptured decoration intended by the architect as the source of life and expression and picturesque effect in the building. Most of those immediately interested in it seem to be unaware of this. They do not know that the dark spaces between the square columns at either end of the principal flank are intended as the background to throw out statues intended to be set on the blocking placed ready for them in the screen-wall between the columns. They are not aware that the large square alaba or projecting panels of rough-finished stone beneath these colonnades and in other parts of the building, are no permanent part of the design as contemplated by the architect; that these dumb stones are only waiting for the hand of the sculptor to waken them into life and interest as bas-reliefs. St. George's Hall has been called cold and bare in appearance; it may well be so, when it wants the very means by which this effect was to be counteracted and the highest touch of interest given to the building. A great deal has been said about art in Liverpool lately; an art-gallery has been given to the town, pictures are being presented for it (some say with more zeal than judgment), and so on.* Here, however, is lying ready to the hand of the art-patrons of Liverpool one of the finest opportunities possible of encouraging one of the noblest forms of art,—the use of sculpture as an accessory of architecture, simply by completing the building which has all these years remained unfinished and lacking its true and crowning graces. There is opportunity here for high-class figures, on an heroic scale, between the columns, and for emulating the art of Flaxman in the bas-reliefs for which the stone is waiting. By promoting the completion of St. George's Hall in this manner the Corporation would be doing good work for the advancement of art and the credit of their town. Upon some of the other subjects included in the programme, the influence of academies and the influence of decorative art upon society, we may have something to say when the proceedings are published. In the mean time we hope the Art Section will not separate without something being done or spoken in regard to the completion (better late than never) of the building in which they will assemble; and may point out that if any Liverpool Mæcenæ desires to follow some of the liberal examples that have been set in the town, and to immortalise himself by giving 20,000*l.* or so to encourage art, he could find no better and more suitable object than the artistic completion of Elmes's great building.

THE TOWN-HOUSE AT HOME AND ABROAD.

ONE of the delights of Continental travel to Englishwomen, and to some Englishmen, is the pleasure experienced in reaching home again. The insular wife and mother has enjoyed in Paris or Vienna, hotel-life, *café*-life, garden-life, and out-of-door life, of every description, but no home-life; and she draws the rapid inference that "home," both in name and fact, is exclusively English. Her self-congratulation,—her delight at getting back to "the Square"—though sometimes chastened by the conviction

* One or two of the most recent purchases, considered as works intended to occupy a permanent Gallery of Art, are really quite deplorable. It is not sufficient to spend money upon art; it must be spent on the right objects, otherwise it is better not spent at all.

that four of the servants must leave at the first opportunity—has something in it of Pharaonic scorn and pity for the social Publicans of neighbouring cities, and another tongue. To her, the whole course of life in Paris seems to resemble that probationary term of existence led by the British bachelor, from the time of leaving his maternal moorings to that of accepting another form of feminine bondage. She knows that her Bertie and Sydney, who, in the season, stand daily at the window of the Sarcophagus or the Megatherium, retire at night into two small bedrooms in Jermyn-street; but this is a temporary expedient to enable them to learn how their betters live—a short and disagreeable prelude to social development, when Bertie shall have household gods and a goddess, and Sydney, in his “castle,” be enabled to lower a portcullis against all intruders. To the out-of-door French life, however—and it is the Insular wife and mother, not the writer, who is thinking—there is no *après*; no portcullis, but a mere private door upon a common staircase! Therefore she is glad to return to that house which to an Englishman is his castle—a glorious adage which, in the French language, has no equivalent, except the proverb: “Le charbonnier est maître chez lui”; although, to those who know both sides of the question, the French saying is a much more expressive interpretation of domestic liberty and right, when the homes of all—not alone those of the few—are taken into serious consideration.

We grant, however, that even to the stronger, although not always sterner, sex there is something ludicrous in the manner in which *ce petit Jules* and *M. de Chacabac* will sometimes talk about their mode of housing,—much in advance, nevertheless, of that of many Englishmen of the same types, who live in dingy, expensive lodgings in London. Jules has a “*chez lui*” under a chimney-stack in the Quartier-Latin, and *de Chacabac* is “*dans ses meubles*,” near the Madeleine; and when the time comes for these young gentlemen to “*ranger*” themselves, the latter’s aspirations will probably mount to an “*appartement avec balcon*,” on the third or fourth story of some new block of buildings, which, when duly garnished with furniture and a wife, he will call his “*intérieur*.” All this seems very funny,—especially to call a home an interior,—but the fact remains that both Jules and *de Chacabac* will continue to be citizens of a great capital, enjoy its pleasures, live in the heart of town, and mix in the concentrated wit of their country to the end of their days. If ever *de Chacabac* gets rich enough to pay 600*l.* or 800*l.* per annum for a first-floor “flat” or *appartement*, he will probably choose one of the new houses in the Champs-Élysées; and his domestic servants will then be one cook, one scullion, one valet or butler, one lady’s maid, and, unless under extraordinary and unpremeditated circumstances, one nurse. Monsieur and madame will breakfast, lunch, and dine at home, with almost scrupulous regularity; and be quite as particular about closing their portcullis as the most bigoted householder in this country. Although, for a change and the fun of the thing, they may at times be seen on chairs in the Champs-Élysées, or even outside a *café* on a summer’s evening, it is no more the habitual custom for French ladies and gentlemen to do either, than it was for Louis Philippe to traverse Paris in omnibuses, in one of which the King was once detected, armed only with an umbrella; and English people, who imagine they see Parisian householders dining at “*Durand’s*,” or breakfasting at the *Café Riche*, are as much deceived as the foreigner, who, visiting a London theatre in September, thinks to encounter an audience of Londoners; or who, perceiving the inhabitants of a suburban semi-detached villa at dinner in the basement story, writes to the *Figaro* information that all Englishmen dine underground.

Nevertheless, if the Parisian rushed from one English city to another,—from one centre of commercial activity to another, as we English do abroad,—he would probably pick out, although in an equally confused and incomplete manner, some of the blots in the household arrangements of this country. He might wonder that, where, as in the heart of London, several families are housed under one roof, some method of separating them, better than that which exists, is not devised; and he might ask whether English architects have ever been inside a French *maison-à-loyer*? Why, also, when the English are successful in copying the exteriors of Continental houses, they do not extend their researches to

the insides of them, and reproduce the economical, the comfortable, the easily-served *appartement* of Europe? He would be quite unable to understand the logic which plans a house, for the accommodation of several families, on exactly the same principle as a house destined to be inhabited by only one. He would be still more astonished to learn that, at the bottom of the palpable absurdity, rest defective laws and legalised abuses; and that the anachronism does not result from any absence of artistic talent, or even of scientific and technical learning on the part of British architects and engineers, or the apostles of Hygeia.

In few, if any, European cities are houses to be found similar to the town residences of London. Therein, a certain description of room is proper to a certain floor; and a feeling of incongruity is experienced in being ushered upstairs to dine, or, on being received at a formal visit, in any room on a level with the street. To proceed from one set of rooms to another, it is necessary to mount or descend a number of steps; and, in some even expensive neighbourhoods, a single staircase is the sole means of communication, for both master and servant, from one part of the house to another. When a family requires additional accommodation, an extra story is superposed. But the average town-house may be said to consist of four stories, enclosed by a stratum of domestic offices at the bottom, and another of servants’ bedrooms at the top. Insulation from damp below and cold above is preserved by the dependents, who live in the basement by day and in the roof by night; and upon them falls the real inconvenience of the London private house. To their employers, climbing from room to room is often healthy exercise; but the majority of the employed are women, with whom the enforced climbing of several stairs always aggravates, and sometimes produces, disease. Tenants, therefore, of tall, vertical houses are obliged so to arrange their homes, as to admit of posting certain servants, midway, between basement and roof. Thus, some female servants seldom descend to the kitchen, and, as an almost invariable rule, men-servants do not ascend higher than the drawing-room floor. These—butter, footman, page—sleep on a level with the cellars. Where there is a large family, and consequently a numerous staff of servants, the English town-house undeniably secures privacy; and it encloses the domestic circle more effectually than does the residence peculiar to the Continent.

But when, on the contrary, a family is not increased by a large number of young children, the Continental house offers many advantages, besides that of economy, over the English one. It is worth while glancing at one example of the manner in which a Londoner and a Parisian, of similar tastes and social position, and with an equally small income, obtain house-room in a crowded capital. They both wish to frequent the parks and fashionable thoroughfares, as well as the theatres, clubs, and learned societies. To both, books, newspapers, and conversation are necessities of life. Neither can esteem that place a home in which are obtained merely “bed and breakfast.” Yet neither can afford to spend on rent and taxes more than 60*l.* or 70*l.* per annum. In Central London, at least in a tolerable neighbourhood, it is difficult to obtain a house for that sum; and it is therefore the custom to take a portion of one, the remainder of which may be occupied by a speculating “landlord,” or by other lodgers. Sometimes this same landlord lives in the front kitchen by day, and in the back parlour by night. The back kitchen, and what is called the “upper part-of-the-house,” are let together; the front parlour and the second-floor back bedroom are also let together; and a bachelor or so may have a bed-room on the top story. The different occupants are continually meeting each other on the narrow stairs; and they can neither shut themselves in, nor shut out their fellow lodgers. They have, however, the consolation of occupying a house which externally appears to be a private one—quite as much a castle as any other inhabited by a single family. If there exist just a suspicion that it is a lodging-house, outsiders are not able to tell if the “householder” be the parties on the upper floors or the parties on the lower ones. The Parisian is more logical and methodical, if not more fortunate. In the centre of Paris a complete house fit for a family, composed of husband, wife, two children, and two servants, can be obtained in a broad street and even on a boulevard. Each of these horizontal houses (*appartements*) consists often of a kitchen and

its offices, with two vaulted cellars, and two servants’ bedrooms; a drawing-room, a dining-room, two bedrooms, and a dressing-room; and there is an entrance-hall or antechamber to each. The objection to them lies in the fact that in the fashionable quarters of Paris privacy and comfort at a low rental can only be had on the upper floors of a building. Yet even this objection, to use a French phrase, is more apparent than real; for the Parisian, who ascends twice or thrice a day to his horizontal house, has less climbing to do in the course of twenty-four hours than the Londoner, who, in his superposed vertical home, is perpetually running up or down stairs on trivial errands. That, however, is hardly a point worth discussion; the fact to be noted is that, in the heart of Paris, small families are provided with private residences specially contrived for their accommodation, the minimum rental of which may be put at 50*l.* per annum. In the heart of London, small entire houses, fit to reside in, cost annually, with taxes, double that amount. Moreover, Paris buildings, in which these small horizontal residences are to be found, possess often carved stone fronts; and always, in the new houses, iron and concrete floors, with oak joinery. But the London vertical “castle,” of twice the rental, is built of plain brick walls, with perhaps a stucco front; always with rough wooden floors, naked and hollow; and with deal joinery.

No more convincing proof of the vast difference, in an artistic point of view, between housebuilding in England and France can be found, than in the fact that Parisian architects and others are enabled to publish whole bookfuls of plans and elevations of ordinary *maisons-à-loyer*, erected in Paris, and the chief departmental cities. These are not only instructive, as examples of distribution, but, also, as studies of ornament and other details. We ourselves are enabled, from time to time, to publish views and plans of private houses and shops erected in London, but the occasions for so doing are extremely rare; and no publisher would be suicidal enough to commit to print,—as is done in Paris with whole streets of new houses,—similar buildings in London. It is notorious that M. César Daly’s “*L’Architecture Privée*” has become, or is fast becoming, a standard work of reference, from which the house-fronts of other Continental cities are deliberately copied; and upon which, we suspect, the future façades, at least, of Northumberland-avenue will largely depend for inspiration.

The advantage of the London town-house,—belonging to the vertical system of house accommodation,—which lies in the possibility of entering it immediately from the street, is counterbalanced in the horizontal system,—whereby several houses are superposed,—by the addition of a carriage entrance, under which the tenants can reach the grand staircase without risk of exposure to rain or inclement weather. In Paris, a block of four or five horizontal houses is always possessed of a *porte-cochère*; so that a lady, attired for ball or concert, can quit and re-enter her own house with the greatest impunity, even in a thunderstorm. Nor is the apparent disadvantage,—that which is most likely to strike an Englishman,—of having neighbours above and below greater than is experienced in semi-detached villas and suburban terraces in this country; for the Paris houses have party-floors as well as party-walls; and we leave it to those who have lived in both capitals to say whether the latter in London are a more effectual barrier against contiguous noise than are the former in Paris.

All the houses in Vienna, with the exception of the private mansions of the nobility and the wealthy classes, are erected upon the horizontal system,—that is, in more vulgar parlance, they are houses-in-flats. These town-dwellings vary from one or two rooms and a kitchen to ten, fifteen, and twenty rooms. The rents vary according to floor, size of rooms, elegance of finish, and neighbourhood. Away from the centre of the town, a bachelor correspondent, to whom we are indebted for some of this information,—occupies a dwelling—on the third floor—of two rooms and a kitchen, for which he pays 24*l.* per annum. The ground-story of each house is almost always devoted, as in Paris, to commerce; and in St. Stephen’s-square, the best part of Vienna, a large and well-known *café* is rented at 4,400*l.* per annum. Some of the Viennese buildings have two horizontal houses on a floor, and they are consequently reached from one common landing; and lately, some of the large dwellings of fifteen and twenty rooms, being

found too extensive, have been sub-divided. Those, however, of from two to five rooms each, with the necessary domestic offices attached, are in constant request; and they steadily maintain a comparatively high rent. Those in localities not central, may be valued annually at about 18l. per room (exclusive of servants' rooms and offices). In central situations, and on a first floor, the average is about 36l. per room; and, at the street level, a shop is generally paid for according to number and size of windows,—in some parts, a window being worth 175l. annually.

In St. Petersburg, only the wealthier classes live in what, in England, are called private houses. The horizontal house prevails; and family dwellings vary in size and convenience from three rooms to thirty and even forty rooms, the annual rents of which may be estimated at from 300 Rbs. to as much as 15,000 Rbs. per annum.

In Switzerland, among a mixed race, numerically small, there seems to be a thorough appreciation of the mode of life and housing, necessary to those centres in which men congregate for business or even pleasure; and it may fairly be said that few nations are more domesticated than the Swiss. Generally their town-houses are arranged in stories, each containing a family dwelling having all its rooms on the same level. A middle-class horizontal house, in Geneva, is composed of a drawing and a dining room, two or three bedrooms, and a kitchen and its offices. Others of a larger description possess, in addition, a library and a small drawing-room, with often extra bedrooms; but the kitchen is always on the same level (though at the back) as the rest of the dwelling. There are also houses, which contain two dwellings of several rooms on each story; and also, in some larger houses, there is a servants' staircase, as in Paris, but this is rare. A great many well-to-do and even wealthy Swiss, who have country houses, content themselves with small town-dwellings, which, in summer, and at other times, they leave in charge of the house-porter.

The ordinary British notion of horizontal houses, erected upon the model of the Parisian *maison-à-loyer*, is generally connected with the old-fashioned form of "flat," to be seen in Edinburgh, Glasgow, and Aberdeen. But although, of late years, the Scotch dwellings have been vastly improved in internal distribution, they cannot yet be compared to the new houses of the Second Empire, and the numerous copies of them in different parts of Europe. The Scotch "flat" is still extremely defective in a sanitary point of view; and were it not that Edinburgh is happily situated on a spot where, at times, a piercing wind penetrates into the most confined courts and areas,—sweeping lofty and impossible ventilating shafts,—the result of unscientific planning might effectually exhibit itself in the Registrar-General's returns. In no other city, however, has the horizontal system of house accommodation been so fully developed, among all classes of people, and from a remote period, as in Edinburgh. As far back as the sixteenth and seventeenth centuries, houses in the Old Town were planned and built in "flats"; and on their fronts, at the level of particular stories, were carved shields of arms, indicating the position in society of some of the occupants. We believe it is now beyond dispute that, in parts of Edinburgh, at the end of the sixteenth century, there were immense blocks of building, some as much as thirteen stories high, each one containing a large horizontal house.

But in the largest and richest city in the world—in London,—although the vast majority of the houses, within a certain distance N., N.W., and S. of Temple Bar, are occupied in floors, and by several groups of people, none are built in "flats," or in blocks of self-contained dwellings,—except, of course, those almost-public buildings which have been raised by the exertions of commercial companies and private charity. In saying that the economical town-house of the Continent—of Paris, Vienna, St. Petersburg, and Berlin, of the chief Italian cities, of Geneva and the French parts of Switzerland, of Brussels, and of some of the northern seaport towns, of Lyons, Marseilles, and Bordeaux,—is unknown in London, we are not Quixotically urging the alteration of houses such as now exist in Grosvenor-square or Grosvenor-place, in Bedford, Portman, and other squares, or in Portland-place; and we do not advise the noble and wealthy in this country to seek horizontal houses of twenty-five rooms, in preference to their present lofty, vertical residences. Our object is to point out that the Continental architect has

solved the problem of housing numerous families and groups under one roof, in a popular and an economical fashion; and that although his work may be still blemished with many sanitary defects, it is infinitely better,—more scientific and artistic,—than anything of the kind to be found among those worn-out houses, which contain the extemporised homes of thousands of Londoners, many of whom, although scandalously lodged, are neither poor, ill-educated, nor ill-bred.

The Continental or horizontal system of house accommodation enables a larger number of persons to share in the advantages of a good site—in healthy separate tenements, complete and specially contrived,—than does the vertical system, whereby an old family dwelling-house is divided and subdivided into several lodgings; and the vertical system, although admirably adapted for small towns and the circumference of large ones, is,—and this is surely indisputable,—an extravagant method of covering valuable land in the centre of a colossal metropolis. At present, the ground-rent of a site in London costs no more for the erection of a six-story building than for one of two stories. By adopting the Continental principle of plan, two strong houses could be made to stand upon a plot of ground, where a single weak one stood before; or, at least, it may be considered certain that the land covered by three vertical houses, in each of which two families extemporise homes, would suffice to hold six "flat" residences or horizontal houses, distinct and self-contained; and these, with the profitable addition of shops or offices on the ground floor. Such a re-arrangement of tenements in Central London would provide homes for an immense number of families,—some of them, we repeat, comparatively well-to-do in the world,—who, at present, are obliged to rent only portions of houses.

Opportunities for improving the dwellings of Central London are now and then offered to speculators. The recent Act of Parliament is likely to afford many not only to workmen, but to higher grades of the community. The few new streets, which have been lately opened, are, if not broad, at least broader than those they supersede; and the building-land, through which they pass, is necessarily increased in value. In Paris, broad streets imply tall houses; for, there, the Legislature regulates the height of buildings, lining the highways, by the width of the street; and, here, by some unwritten law, houses erected in a new thoroughfare are tall and consequently composed of several floors. The improvements, as far as they have gone, in the centre of London, are simply a gain to commerce; but since a shop must be at the street level, and only two floors over it can be let for business purposes—since the lessees of both the shop and the offices will reside out of town—there remain, in these tall houses, upper floors in which small, well-to-do families might find residences. It is perfectly easy to arrange a building so that the portions devoted to commerce shall be distinct from those devoted to private dwellings; and the latter can be made equally distinct from each other. That people will not inhabit the tops of high houses, and that they will not climb up several flights of steps, are both mere assertions; for a great part of an Englishwoman's daily life is spent upon the stairs. All over Europe, and in parts of America, families do live comfortably at the tops of big buildings; and, since "elevators" have been successfully introduced, the upper floors are often preferred. In Paris the favourite story is the *seconde* and, after that, the *cinquième*. If the question were put practically, on a good site in Central London, to small families of education and position, a horizontal residence on an upper floor—and the ease of a lift—would be often preferred to a vertical one in a park of semi-detached villas at Clapham, or a terrace in Westbourne Park—and the confusion of an underground railway.

But a residence on a floor, however complete and private, is not regarded by a "thorough" Englishman, whose house is his "castle," in any other light than "lodgings,"—a temporary home, which he would quit at the earliest opportunity. The Insular conception of house and home implies a bit of one's own land, so to speak, beneath, and a bit of one's own sky above. A domestic fortress may have closely contiguous neighbours on three of its four sides; but immediately under it must be earth, and immediately over it air; for on no other condition can Englishmen believe that they are residing in a private house. Yet, unless some compromise be accepted by those who live

in the heart of town and in private houses, the present difficulty of obtaining such accommodation must culminate in the impossibility of so doing. The constant diminution in the area of the exclusively residential portions of central London has been frequently pointed out and explained in our columns. Not the faintest sign points to a chance of Soho, or St. Giles, or similarly fallen neighbourhoods, regaining the positions they held, at no remote period, as quarters of the town eligible for residence. The squalor which now reigns in their streets of vertical houses,—once private residences,—is unknown among the blocks of horizontal houses in the heart of the French capital. Within a radius of two miles from the Madeleine, there is no vitiated thoroughfare comparable to Drury-lane or Bedfordbury; no tortuous passages such as permeate the vicinity of Holborn and the Strand. We do not deny that, in Paris, improvement has tended a little severely to make the poorer classes give place to their more prosperous brethren; but, in London, time, not improvement, gradually drives the rich to the outskirts, and leaves the poor in possession of the town.

Perhaps it is only logical that the most dangerous opponents, in England, to the application to Central London of the Continental system of house-building, should be found among the classes of people who receive the most benefit from it abroad. Of its worst antagonists, often the speaker at a public meeting, and the critics who favourably review his utterances, have never set foot in a Paris dwelling-house. Although the objections to a horizontal house are undoubtedly numerous, those which, in particular, seize the Insular mind are not more weighty than the arguments used to extol the vertical one. It is not the contiguity of neighbours,—for Londoners have sufficient experience of that through party-walls, to which imperfect clauses of a moribund Building Act have inured them,—but the fancied evils of a public staircase and the imaginary danger of a lift, which are the real obstacles to the popularisation, in this country, of the horizontal house. These, English human nature,—so different from all other human nature!—can never overcome; but, at least, some errors concerning both can be refuted, even if the prejudices against them remain irresistible. A public staircase is the rule, not the exception, on the Continent. In Paris, much less inconvenience is felt by tenants who use the same staircase than the "thorough" Englishman supposes. The open sea, as sailors know, is just where ships rarely meet; and either from the smallness of French families, or hazard, or diversity of habit, the score of dwellers, of all ages and both sexes, in a Paris building, rarely encounter each other on the staircase. The servants never jostle their masters upon it, for they have their own stairs; and often in each house their own corridor. It is forgotten by the Insular wife and mother, habituated to the vertical system, that, in a horizontal house, there is no need to go to different rooms either up or down stairs, which is the passage simply of ascent from, or descent to, the street pavement. All sorts of iniquities, it is said, might be perpetrated upon these stairs! At every turn of them the peer, who resides on a first-floor, rubs shoulders against the labourer, who has a room in the roof,—a strange fallacy which cannot be too positively contradicted. The inhabitants of a block of houses in Paris move in pretty nearly the same stratum of society, and, as in London, their social position is generally relative to the neighbourhood in which they reside. But stairs, leading to horizontal houses on the upper stories of big buildings in central London, would be rarely used, because the advantage of a lift, in two or even three compartments, would soon be appreciated. In America, travellers, at least, seldom use any other mode of ascent than the common elevator. Of the objections urged to it here,—and, indeed, to the horizontal house,—one is exactly similar to that which was made to the introduction of the "flying coach," regarded 200 years ago as a fatal innovation. Passengers, it was said, would be grievously annoyed by invalids and crying children. The horse was preferable as a means of transit, because on that quadruped's back a man was, so to speak, on his own ground, with his own sky above him. Nevertheless, potent as this argument was, the "stage" has long given place to the "rail"; and here and there, in Europe and America, the elevator, which carries one, has already superseded stairs, which one is obliged to climb.

"HISTORICAL AND ARCHITECTURAL STUDIES."

THE usefulness and suggestiveness of this book,* which in some lights, and to certain classes of readers, ought to be considerable, are due mainly to the view which it presents of the connexion between architectural monuments and history. Its author is one of the very few men of wide scholarship and literary ability who have given some serious attention to architecture both in regard to its intrinsic interest and its connexion with and illustration of the history of cities and nations, and have studied to understand its principles correctly and describe it accurately. In some respects we are disposed to say that Mr. Freeman stands alone among scholars and historians of the day, in England at least, in his architectural appreciations. It is positively refreshing, for instance, to find a writer, neither an architect nor a professed art-critic, estimating so correctly and contemptuously as he does the rubbish which every visitor to Rome thinks himself bound to write and talk about St. Peter's and the perfection of its "proportions." "In the tourist mind," as he observes, "it is received as a kind of moral duty to look on the Vatican Basilica as the noblest church in the world. We saw a small book of travels the other day in which the writer, after going through several cities of Italy, is on the point of declaring St. Vitale, at Ravenna, to be the finest thing he had seen on his journey. But he checks himself, and puts in a proviso that, of course, he only means after St. Peter's. This is not a bad case of a man's natural sense revolting against the dogmas of his guide or his guidebook." The average tourist's notions on the subject are probably much what are indicated in the letter of the young lady in Clough's poem:—

"Here we are, dearest Louise, with the seven-and-twenty boxes!
Here we are all at Rome, and delighted, of course, with St. Peter's," &c.

We recommend to all the class of "tourists," before they go into their next raptures about St. Peter's, just to read Mr. Freeman's criticism on it and them (pp. 198-200), and they will, perhaps, be enlightened. The absurdity of the "proportions" idea about St. Peter's has been commented on frequently in our columns, and by one or two known professional writers on architecture; but this is really the first time we remember to have seen the point properly dealt with in a non-professional book; and for that, at least, we may thank the author.

If the "sketches" in general are not likely to be of much use to the average tourist, it is because they would make far too large demands on his historical knowledge and sympathies. To persons of good general education going over the same ground, who have not as yet given any particular thought to the significance of architectural monuments except as mere adjuncts to the picturesque, or as "fine buildings," this book contains much that would be very suggestive, and would open the minds of some of our readers to an interest in Italian cities beyond what they have previously experienced. And whilst such readers would learn from it more of the architectural interest of the places they pass through than they before knew, it may be said that Mr. Freeman's pages might, from an opposite point of view, be of some value to travelling architects in leading them to think more of the historical side of architecture, and of the historical interest and association and meaning of some famous buildings and cities. Of course there are those in the profession who require no assistance in estimating the value of this side of architectural study; but we must confess that in some records of architectural tours, written by architects of no little ability and eminence, this broad intellectual view of the subject is just what we seem to miss. There is nothing to be learned by the architect upon architecture, *pur et simple*, in Mr. Freeman's pages; indeed, in regard to architectural detail we are inclined to suspect that his knowledge is rather general than special, nor does he appear to be so familiar with the constructive basis of architecture as it is necessary for any one to be who is really intending to give definite instruction in regard to the art of building. But then this, as we have implied, is scarcely the object of the book. Mr. Freeman goes over the historic cities of Italy with the eyes at once of a student of history and a lover of

architecture; and it is this combination which gives the specialty to his book. He has nearly always a broad generalisation to give as to the associations and connexions, political and architectural, of the cities he takes us to. He sees Ravenna as the city which, above all others, "keeps up the memory of the days which were alike Roman, Christian, and Imperial." Gelnhausen reminds him that "to the true student of universal history Rome is everywhere." At Pisa we are reminded of the change in her position by the receding of the coast-line, while it is suggested that as under new modes of communication new cities arise, so also old ones which have sunk may rise again, and Pisa may look to become, under the railway system, a great centre of communication by land, as she was formerly a great maritime town. The date of the Duomo at Pisa is discussed; but to a Northern inquirer the interest is not in the precise year of its foundation, "but in the fact that it is contemporary with Durham." The broad space in which the great group of the architectural monuments of Pisa stands is contrasted with the precincts of our English cathedrals. "Though there is at Pisa a distinct ecclesiastical quarter, its feeling is as unlike as possible to that of an English cathedral-close. In England the close is commonly something cut off from the city; in some cases the city itself is something which has grown up outside the close. At Pisa, though we are in an ecclesiastical quarter of the city, we still feel that we are within the city, that the great church and its satellites were the work and possession of its citizens, and not the separate domain of an ecclesiastical prince": and nothing could be more significant than such a distinction. In this kind of way the author constantly flashes for a moment a new light upon the relations of buildings to their builders and to each other, which makes his pages very suggestive. By way of a more connected specimen of his style, and also as illustrating the kind of view of his subject which has evidently suggested his studies, we may quote the following remarks on the advantages of renewed and comparative study of famous sites, from the chapter on "Aachen revisited":—

"Sometimes, again, a visit to one place makes it almost a duty to make a second visit to another place. Two or more places are often so closely connected, that the history of the one is imperfect without the history of the other. The connexion may be of various kinds. The same great names may be common to both; the events which happened at one may have had a direct influence on the events which happened at another; the two places may actually stand to each other in the relation of sisters or of child to parent. Or, again, the connexion, though not so direct as this, may be none the less true and instructive. The two places may hold the same position in the history of their respective countries, or of the times when they were severally most famous; the comparison may be instructive, through the likeness or unlikeness of the two physical sites, or of the buildings which have been raised upon them. In all these ways, whether by likeness or unlikeness, by direct cause and effect, or by mere analogy, one place illustrates another, and the traveller is constantly led to form the fruitless wish that he could suddenly spirit himself from one spot to another far distant. The architectural inquirer would be well pleased if he could place the apses of KÖln and Amiens side by side. He would be still better pleased if he could fly suddenly from the banks of the Wear to the banks of the Arno, and see the glories of Northern and Southern Romanesque, Durham and Pisa, in successive hours. And he would be well pleased, again, on such a Utopian ramble, if he could stop on the way by the banks of the Rhine, and compare the metropolitan church of Germany, the stately and varied forms of the great minster at Mainz, with the buildings on each side of it, which have so much in common with it, and yet so much that is unlike. Here the connexion is only one of analogy and contrast. But when we stand in St. Mark's, we feel that the analogy is imperfect, because we cannot see at the same glance its parent church at Constantinople, and its daughter church at Périgueux. In all these ways one spot illustrates another; and as, even in the days of electric telegraphs, the laws of time and space cannot be wholly got rid of, the best thing is to take every opportunity of seeing one of two places thus connected with a mind still full of the memories of the other."

This is the spirit in which to read architectural history, no doubt, and to make it seem a real and living part of the great course of human affairs. And the author carries his principle into practice, as indeed we have already indicated. Among some other suggestive comparisons we may mention that in which the likeness between the early towers of our own country and the Italian campaniles is touched upon (p. 16), and they are characterised as differing, "not as members of two different classes, but only as highly-finished examples of one class differ from ruder examples of the same"; and the closing paragraph of the very interesting chapter on "Greece in Italy," in which it is observed, speaking of the remains at Paestum, that "the admiration and reverence which they awaken in the mind of the mere classical purist is cold beside that which they kindle in the mind which can give

them their place in the history of art. The temples of Paestum are great and noble from any point of view. But they become greater and nobler as we run over the successive steps in the long series by which their massive columns and entablatures grew into the tall clusters and soaring arches of Westminster and Amiens." A point touched upon in reference to the ancient theatre at Verona has a bearing on the questions of restoration, so much debated at present. The author remarks (p. 31) on the completeness of the internal ranges of seats, and the new look of some of them, as contrasting disagreeably with the ancient and dilapidated ranges of arches. "But when we find that the practice of keeping them in repair has gone on unbroken through all ages down to our own, the custom itself becomes a part of the history of the building, a part as well worth preserving as any other, and which helps in a forcible way to keep up the feeling of unbroken connexion with the past."

We are glad to give all recognition to the high standard of literary power, historical knowledge, and (to a great extent) of architectural criticism which Mr. Freeman's pages exhibit. A book of this stamp, if it becomes popular, cannot but advance the interest in and comprehension of architecture among general readers. We regret to have to point out the serious drawback to the book in the nature of the illustrations supplied. These are photographs from the author's own sketches, made in pen and ink on the spot (we presume). From a remark in his preface, that he fears "the result of the process has been to exaggerate the necessary defects of the rough sketches, and at the same time to take off something from their life and force," it appears that he is not without misgivings in regard to this part of the work. It is our duty to tell Mr. Freeman that the illustrations are a great deal worse than he seems to be aware of; so much so as to be a positive annoyance to any one with an eye for drawing, and likely to have a very bad effect (if any) on those who have not. We have no particular objection to mere roughness of sketches which are made on the spot, if it be roughness of the right sort; such sketches are often very piquant and vivid records of the impression made by the building upon the spectator. But the sketches given us by Mr. Freeman are not only destitute of anything like artistic feeling and style, but they display a grotesque indifference to perspective, which no man with a trained hand and eye, and accustomed (if we may use the expression) to think in perspective, could possibly fall into, even in the roughest and most hasty sketch. We have only to refer to the sketches facing pp. 29, 142, and 215, to justify us in saying that to publish these as architectural illustrations amounts to a want of respect on the part of the author towards all those of his readers who have any knowledge of drawing. Some are better, but the very best, such as those facing pp. 209 and 250, are merely passable; they have not gross faults, but they are destitute of that "touch" and style which an artistic sketcher will put into his roughest work. Mr. Freeman hopes to follow the present book by others of a similar kind, going over other ground. We shall heartily welcome such publications, on literary grounds; but we do earnestly counsel Mr. Freeman not again to be his own artist—unless he will take lessons in drawing first.

NEGLECTED ARCHITECTURAL BIOGRAPHY.

(NOTES AND MS. MATERIALS.)

We recently picked up on a book-stall the two volumes of "Milizia's Lives of Celebrated Architects, Ancient and Modern," as translated from the Italian by Mrs. Edward Cressy, the wife of the architect and architectural writer of that name, who was one of the original members of the precursor society that pioneered the way for the establishment of the Royal Institute of British Architects. In these volumes we found between the leaves a number of MS. notes, on slips, containing data of a useful kind concerning British, Continental, and American architects, several of whose biographies are as yet unwritten, lists of some of their works, and the dates of their birth and death. In the volume in question there is also a number of marginal notes or corrections relating to the text, and in reference to blunders committed through ignorance or oversight. In the index to the second volume, containing the names of the architects (whose lives have been given) arranged alphabetically, the

* Historical and Architectural Studies, chiefly Italian. By Edward A. Freeman, D.C.L., LL.D., &c. Macmillan & Co.

author of the MS. notes has inserted, or added, under each respective initial letter, the names of the architects of whom no notice was given in Milizia's work, and of several others living towards the end of the eighteenth, and in the first half of the present century. The intention of the writer of the notes would appear to have been the preparation of a new edition of the lives of the architects, carried down to the present day, and written on the basis of Milizia's work. The last English architect whose name was inserted in the lists made, is Augustus Welby Pugin, 1852, signifying the date of his death; and preceding this are the names of an Irish and a Continental architect, Sir Richard Morrison, 1849, and Bianchi, 1850, the years in which these architects died. Among the memorabilia there is a list of the London clubs and other public institutions, and a list of several noble mansions existing and destroyed; the architects of the two former, and the styles of architecture in which they are built. References are given in several instances to volumes in which some materials may be found, or the sources to which the compiler of the data is indebted for the names he has furnished of architects hitherto overlooked, or scantily noticed during their lifetime. Among these are some names, British, Irish, and foreign, of whom we have ourselves furnished some brief biographies in the *Builder*. Again, there are names of architects of eminence in their day, docketed for notice, and living many years into the present century, who have hitherto obtained but slight passing notice, though their architectural works are the admired of thousands. Of some of the latter class, the present writer possesses MS. materials and docketed sources of information which will be made available some day for a comprehensive notice of these architects' lives and works, if health, time, and other circumstances favour the task.

In the MS. slips in Milizia's book we find among others the following brief interesting particulars of two English architects, whose buildings are well known, though their names are seldom mentioned,—Porden and Latrobe,—the latter, though English by birth, was an American architect by practice. "William Porden was architect of two buildings of note for their unusual character,* and one of them also for its magnitude. The first is the riding-house at the Pavilion at Brighton, erected about 1800 in the Moorish style, with a circular court or rotunda covered in by a skylight dome. The other, Eaton Hall, in Cheshire, for the Earl of Grosvenor, afterwards first Marquis of Westminster, one of the most extensive private mansions in England, in the Gothic style of the time, but with more of the ecclesiastical than domestic character. A folio volume of views of its interior as well as exterior was published by Clarke in 1826. Porden died in Berners-street, September 14, 1822, aged about sixty-seven, was father of Eleanor Anne Porden, author of two poems, 'The Veils,' 1816, a production akin to Darwin's 'Botanic Garden,' and 'Richard Cœur de Lion,' 1822." The following memorandum in relation to the above is added:—"Patney Park (New Vit. Brit.), Villa for Beilby Thompson; capital plan, elevation in meagre style (church at Brixton—Doric, with tower at altar end, by his nephew—Porden)." The above materials by the author of the MS. notes are partly compiled from other sources and partly original. Of Latrobe are the following memoranda, with a reference:—"Born 1763, son of an English Moravian preacher, was originally brought up as an architect. Went to America in 1795 (in consequence of being unsettled by his wife's death), where he had an uncle in Philadelphia; died of yellow fever, September 3, 1820." A list of the public buildings he designed in America is appended, and a memorandum, "his son's," indicating, we suppose, that they were worthy of notice.

As half a century has passed since Mrs. Cressy's translation of Milizia's work appeared, it may not be amiss here to say a few words concerning that work. The author, Francesco Milizia, was a somewhat voluminous writer, and the author of cognate works to the one under notice. He was born at Orta, a small city of Terra d'Otranto, in Naples, as far back as 1725, and he died in the city of Rome in 1798. Mrs. Cressy's translated volumes are dedicated to the well-known Sir John Soane, the architect, and past Professor of Architecture in the Royal Academy. He is buried in the old graveyard of St. Giles's, adjoining Old St. Pancras churchyard, and his costly monument, when we last visited

that wretchedly-kept cemetery, was in a much injured condition. Mrs. Cressy's translation of Milizia's work contains a number of notes and notices of buildings erected in England during the Middle Ages. The additional matter also comprises a great part of the life of Sir Christopher Wren, and a number of short memoirs of English architects who flourished mostly in the last century. For the additional matter, the lady translator says in her preface, she is indebted to the memoranda of a professional architect. Her auxiliary most likely was her own beloved husband, Edward Cressy, who at that day hailed from the same address as herself, 6, Suffolk-street, Pall-mall. Edward Cressy and G. L. Taylor, architects, were conjointly authors of the well-known "Architectural Antiquities of Rome," "Revived Architecture of Italy," and "Architecture of the Middle Ages at Pisa," &c.

One of the singular blunders made in Milizia's work, and marked by the writer of the MS. notes in that work, is the including of Benjamin Jonson, "Rare Ben," the bricklayer, poet and dramatist, among the architects whose lives are given. Ben Jonson's life, however, in the work under notice, is compressed into a few lines, and, by way of finish, his celebrated epitaph in Westminster Abbey shines in capitals.

Whether the volumes which have suggested our remarks were "lost, stolen, or strayed," or came into the second-hand-book market in the legitimate way, after passing under the auctioneer's hammer, on decease of their owner, we know not.

THE PROGRESS OF MIDDLESBROUGH. ON TEES.

MIDDLESBROUGH has more than once been described as the Chicago of the North; but its growth has been unlike that of the great American city, and the causes which have led to its present extent and importance are widely different from those moulding the destinies of its supposed prototype. It has not had so absolutely sudden a growth, nor one so wholly unchecked, and the cause of its foundation is only partly the cause of its present prosperity, which, in great measure, is due to the second of the two great causes of the upgrowth of the towns in the North. Middlesbrough, though coal-begot, has been nurtured till it has attained its present importance by iron; but the causes of its introduction to the latter were brought about by no accident, as has long been supposed. Indeed, no town in Britain had for so long the parental care of its founders, and few have derived greater advantages from the situation. But still the story of its growth is a wonderful one, and one which, as every year increases its extent, is yearly more worth the telling.

On the site of its first houses, there stood, in the ancient days, a priory dedicated to St. Hilda, and given by Robert de Brus, of Skelton Castle, to Whitby. The chapel fell into decay after the Reformation, but the attached graveyard continued in use down to a much later date. Fifty years ago, however, there was one farmhouse only on the present site of Middlesbrough, into whose walls the ruins of the priory, it is stated, had been built. It stood remote, melancholy, and alone, not far from the winding and uncertain stream of the Tees, and it was not till after the opening of the first public railway and the search for a place for coal shipment, that there seemed a possibility of the growth of even a village on the site. In search of such a place for the shipment of South Durham coal, the promoters fixed upon Middlesbrough, and in 1829 seven enterprising Quakers purchased some 500 acres of land, and so laid the foundation of the town of Middlesbrough, in what was then a "barren, naked spot." In the following year the primal and still the only public railway—the Stockton and Darlington—was extended to the little village, and, by the shipment of coals, the young community began its first stage of growth. The huts in which the coal-trimmers and builders lived began to be replaced by decent cottages, one of which, in what is now West-street, bears an inscription that it was erected in April, 1830, and was "the first house in the new town of Middlesbrough-upon-Tees." Its growth was slow but sure, and, steadily fostered by its parental owners and by the railway company, it gradually acquired the dimensions of a town. Early, gas lighted its streets; and in that same year—1834—it commenced manufactures by establishing and working a pottery, and also by commencing the iron trade on a miniature scale by the erection of a foundry. Still, when,

forty years ago, the Duke of Sussex visited the town, the after-dinner orators who dilated on the young town dwelt almost solely upon the shipping trade, and appeared to look to it, and to the ship-building yards then begun, as the sheet-anchors of the future prosperity of the young town, which had scarcely church, chapel, or settled place of worship. It is fully thirty-five years ago since the addition of foundries and ironworks on a scale of some magnitude to the young town by a firm—that of Bolckow & Vaughan,—whose name is now historically associated with a new departure in the iron trade. Gradually these works, and others commenced near them three years later, grew, and for eight or nine years Middlesbrough's fortunes varied with a critical period of the iron trade. Eventually, the need and the demand for iron, and especially the exhaustion of ironfields, caused a search to be commenced for ironstone. In Cleveland, the firm we have named prosecuted it with vigour, and eventually, twenty-six years ago, what is known as the "commercial discovery of the Cleveland ironstone" became an accomplished fact, and the second epoch in the growth of the young town thereafter commenced. The iron trade of the North from thence took a leap forward, and it became the factor, determining the rate of growth of the town and also the prosperity of other and allied trades. Adjoining and around Middlesbrough lay the great seams of the Cleveland ironstone, and these have been yearly tapped with increasing energy until now there are drawn from thence above six million tons of ironstone yearly, from a district in which, up to 1850, a few hundred or at most a few thousand tons was the annual output. To smelt this, there was no blast furnace in the Cleveland district up to that discovery, and only some thirty-six in the whole of the North of England; but gradually, with the growth of iron-mining, there was an equal growth of furnaces, and now of these dark and costly indices to prosperity about 160 are erected in the north-eastern district, and, naturally, of the prosperity these indicate, Middlesbrough became the centre and the emporium. These blast furnaces were erected first at Middlesbrough, then they crept to Eston, a little to the east, near which the ironstone had been discovered, then to the west, across the Tees, and now their blast flames may be seen along a large part of the boundary of Cleveland. Next puddling furnaces and rolling-mills in a fully corresponding ratio were erected, not only in Cleveland, but in the adjacent district, until the four hundred previously known in the north had been more than multiplied fivefold, and the whole district may be said to be permeated with the wealth and the influence created by this great industry.

That change became marked most in Middlesbrough. The discovery of ironstone was made at a time when the town was very small and comparatively insignificant. One dusky little church graced the corner of the market-place, with a Wesleyan chapel fronting it; one rowed boat did duty to ferry the passengers over the Tees; and two or three trains daily brought in the rest of the passenger traffic. The population had increased from 383 in 1831 to 5,709 in 1841, and again by 1851 to 7,893, then governed under an Improvement Act. Under the reign of the Iron King the town shot forward rapidly in population, increasing to 18,273 in 1861, again in another decade to 39,434, and now its population is estimated at 50,000. Institutions were founded, the town was incorporated and began to increase in every way in a ratio certainly unexcelled in the history of the growth of towns. Its shipments of coal and coke slightly decreased because of the additional enormous demand for fuel for ironworks; but the exports of other goods leapt by bounds upwards, rising, for instance, from 390,650*l.* in 1864, to above three millions sterling in ten years' time. The 600 acres comprised in its town bounds were added to till now they number 2,600 acres. The streets have grown till those dedicated to the public now number about 100, and extend in length above fourteen miles. Its debt has grown also, but as it may be said to be only about a fifth of its rateable value, it is as yet within bounds. The two places of worship in the pre-iron days are now succeeded by more than two dozen. A station at vast cost is being built to provide for the two-score trains that daily enter the town, and the passenger traffic is also catered for by steam-ferries, which daily convey to and fro nearly 1,000 persons: river-boats also largely swelling the ranks of the travelling public. Every year

the free library issues some 40,000 volumes, and about 6,000 persons enter weekly its two reading-rooms. Its public-houses now number with their subsidiary places of sale nearly seven-score; the police cases number above 2,000 yearly. Its shipyards turn out from twelve to sixteen steam-vessels annually; the blast furnaces within the bounds of the port have a monthly "make" of pig-iron, even in these depressed times, of above 100,000 tons, and one alone of its large rolling-mills can manufacture 1,000 tons of rails weekly.

It has lavishly rewarded with wealth the owners and the firms who assisted in its development. The firm which laid the foundation of the iron trade has been succeeded by a company which employs 10,000 men where a few score were employed; it works half a dozen iron-mines and works where two were once; and it is now, at a vast cost, building Bessemer works to introduce the steel manufacture into Cleveland. The company mines at a dozen collieries, consumes nearly half a million tons of coke, and produces at its various works a quarter of a million tons of pig iron, besides farming thousands of acres of land, owning steamers, iron-mines, and limestone quarries. Similar, if not equal, development has been known by other of the early firms, and they have shown that they have not been forgetful of the source of their wealth. This industrial development, it may be remarked, has not ended in the bounds of the town, though it has known the greatest extent there. From Stockton to Saltburn, however, it may be generically said that it has either lined the banks of the River Tees with blast-furnaces and rolling-mills, or caused the hills a little to the south of that stream to be honeycombed in the search for ironstone, whilst the whole district of Cleveland has known such an influx of population within a generation as is almost unparalleled.

At present the town and the district are under a cloud. There had been in a period of prolonged intense demand for iron an eagerness to invest in ironworks, and thus, when that demand was passing away, there was a large addition to the productive capacity as well as to the manufacturing capacity. Prices in that period of intense demand were forced up for all kinds of iron goods, and they reached at last so great a height that the demand in part was diverted and in part abated. Hence last year and this came to the district and found it with lessened needs and greater powers of production, and the result of this is known in the crisis which came upon Cleveland with increasing intensity until some of the firms fell before it,—and of this strain Middlesbrough has felt the chief force. Naturally, works have been closed, mines have been laid in, but these are temporary measures the result of which is to lessen the supply to what is believed to be the temporarily-lessened demand. With the revival of the need for iron, with the commencement in other countries of another era of railroad making, and with the general recuperation of our own home trade, there will arise a renewed inquiry for iron goods,—if not on so intense or so large a scale as was known three years ago. No district in the world has greater facilities for the supply of that demand than that of which Middlesbrough is the centre, for nature has prodigally endowed it with all the materials for iron manufacture near to it. It possesses one of the largest fields of ironstone in the world; it has close to it the immense coal-fields of South Durham, which yield an annual output of coal greater than any other district; and it has also the limestone of South Durham to flux its ironstone with, so that its raw materials are abundant as well as admirable. Thus favourably circumstanced by nature for manufacture, possessing full facilities for sending off its manufactures, and having confidence in itself, its men, and its proved resources, there are no bounds that may yet be set to the extent of the future growth of Middlesbrough.

Fall of a Roof at Accrington.—Shortly before eight o'clock on Thursday, the 28th ult., the roof of the winding-room connected with Providence Mill, Church, near Accrington, suddenly fell, without any warning. Many persons were at work in the room at the time, and the roof broke through the floor into the weaving-shed. Four persons were seriously injured, and several slightly wounded by the falling slates and stones. The cause of the accident is thought to be the giving way of the outer wall of the winding-room.

MODERN TYRANTS.

WE printed in our last number a simple statement of facts in regard to a "dispute" which has occurred between Messrs. Doulton & Co., the eminent pottery manufacturers, and the Operative Bricklayers' Society (see p. 961, ante), which has resulted for the present in the strike of the bricklayers in their employ, and in the enforcement of that state of things, on the part of the Society, by the modern phase of unjust (good authority seems to say, illegal), coercion which is euphoniously termed "picketing." This sort of incident is now unfortunately too familiar any more to raise in the minds of many persons the mingled astonishment and indignation which the earlier development of the system aroused among those who now seem to regard it as part of the nature of things; and persons who would call themselves philosophers, and whose names appear in the fore-front of important literary publications as the prophets of modern political and social advancement, will go out of their way to give such assistance as the possession of literary power places in their hands to this kind of proceeding, and uphold the right of the injured working-man "peacefully to picket" such buildings as are carried on by his employer in any way which does not approve itself to his limited sense of his own interests. We may not be philosophers, possibly; but retaining, as we believe we do, some certain commonplace perceptions in regard to what constitutes common sense and common justice, we cannot pass over without one more word in the cause of those old-fashioned qualities an incident which seems to bring the wrong side of trade-unionism into such undesirable and discreditable relief.

Now, let any impartial reader just consider what is the real bearing of the case we refer to. Messrs. Doulton & Co. are manufacturers who have achieved a great commercial success in their line of business, by, as far as we have any means of judging, perfectly legitimate methods; by the exercise of ability, forethought, and energy. Those who achieve such a success, in benefiting themselves almost necessarily benefit the community also, by giving a stimulus to the employment of operatives, and furnishing advantages to the buyer. But the particular firm in question have done more than this: they have not only succeeded commercially, by establishing a reputation for good workmanship and materials, but they have given an important stimulus to the revival of a very beautiful branch of art workmanship, and by their enterprise in finding out and employing talented persons, and establishing a school of art-pottery, they have succeeded in producing work which is admitted by the most exigent of art-critics and connoisseurs to be equal to anything of its kind which is to be found among the productions of the best schools of art-pottery that have existed. This firm, in the process of extending their establishment, erect two new buildings, in the decoration of which they are naturally and properly desirous that the art which they have made a specialty should be represented in the best possible form, in the shape of well-executed terra-cotta work. The difficulties of this work, when used as architectural decoration, are known to all who have any experience on the subject. The twisting and alteration of bulk in the material, consequent on the process of firing, render it extremely difficult to ensure a true correspondence of lines and joints in the finished work, success being dependent upon great care in the adjustment of the modelling, so that the various pieces may form a correct fit, as we may say, when burnt, and upon their accurate placing and fitting subsequently. As it is useless to expect the requisite delicacy from ordinary bricklayers, two skilled workmen accustomed to this work, and who have made it their special study, are employed to do it. Hereupon arises the grievance of the worshipful Society of Bricklayers. Not the slightest possible injury has been done to them: it does not appear that the two skilled hands even displaced two ordinary bricklayers; they were an addition to the staff; and as to the main point, the proceedings of Messrs. Doulton were a direct benefit to the bricklayers, in giving them extensive employment on a large job. But the cause of offence was that men were employed who were superior in skill to the members of the Bricklayers' Society, and could do what they could not do: a thing not to be tolerated. Not that the case was openly stated in this way: that would have been far too straightforward a proceeding for the Society. In order to bring their complaint

formally within the usual trade-union rules, a pretext was got up, which those who made it must have known to be practically a deliberate falsehood, that "plasterers" were being employed on what was by right bricklayers' work. The fact apparently was that the obnoxious men had formerly started in life as plasterers, but that they had long since given themselves to the special business of terra-cotta fixing, and had in that capacity been regularly employed on some of the best work of that kind that has been done in London. They had committed, however, the unpardonable sin of being superior workmen to the Society of Bricklayers, and the members of that enlightened body are accordingly forbidden to work any longer on Messrs. Doulton's building, unless the latter will be content with bad work instead of good.

Such is the plain English of as pretty a story of petty insolence, narrowness, and class prejudice as could well be made up. One is inclined to ask, in reading such an account, whether we really live in a civilised country and under the operation of impartial laws. The very temperately-worded letter in which Messrs. Doulton called attention to the case in the *Daily News* was headed, whether by the writers or the newspaper people we do not know, "A Trade Dispute." Dispute, indeed! How is that term to be applied to a case in which the whole of the common sense and justice of the matter are on the side which is comparatively powerless, and the whole force of ignorance, prejudice, and pigheadedness, plus the coercive force of numbers, on the other side? That is not a "trade dispute," it is "trade oppression." We have never been unjust to trade unions; have never questioned the desirability of combinations for mutual protection of common interests in the case of operatives, any more than in the case of professions. But the working classes seem utterly incapable of seeing, or are determined not to see, the line which separates legitimate defence of their own interests from infringement of the interests and the freedom of others. Their principle, or at all events their practice, is "Heads I win, tails you lose." The simple moral justice of the case is this: any man or body of men have no doubt a right to refuse to work upon any but their own terms. Men who refused to work with A and B, because A and B are superior workmen to themselves, and consequently command a special position and higher wages, would be no better than fools for their pains,—would probably in the end injure themselves by putting a heavy drag upon trade and investment, and would show a despicable spirit of selfishness and indifference to the real good of the community, which is concerned in getting all work done as well as it is possible to do it. They would, however, have a right to do this if they chose; but their right of action ceases with themselves. One man has no more right to forcibly prevent another from undertaking work which he himself does not choose to undertake, than he has a right to pick his pocket. This has of course been said over and over again; but the evil is unabated, and it is in the interests of the public at large, in the interests of art, in the interests of progress generally, that we ask once more,—How long is this sort of thing to be tolerated? The kind of principle on which such an action as that of the Bricklayers' Society referred to is based is literally that which has been satirically put into the mouth of an American expounder of the law of the land,—"You cannot take such and such a course, because this is a free country, and the majority won't allow it." We laugh at that as an absurd exaggeration of what the application of universal liberty might, under certain circumstances, result in; but it is no more than the literal statement of the principle upon which the progress of building is regulated by the enlightenment of trade unions. The temporary victimising of a highly respectable and able firm, in a manner the most grossly unjust, is in itself a serious matter; but it is a still more serious thing to reflect that, upon this principle, every improvement in the carrying out of the higher class of builders' work might be put a check to, or the most vexatious and undesirable restriction put upon it, solely to serve the selfish ends of the least educated portion of the community, or rather, to serve what they imagine to be their interests, which are, in fact, certain in the long run to be injured by such an illogical course of proceeding, though it is apparently useless to offer to argue the point with people who appear to have nothing but ignorance and obstinacy to oppose to reason and considerations of fair dealing.

It is therefore in the public interest, in the widest sense (including that of the offenders themselves), that we wish to give some prominence to a flagrant instance of the tyranny of the many; to point out that we are now in the position of having to regard as almost a necessary and inevitable matter, a style of proceeding on the part of certain trade societies which is subversive of the common interests of society at large, and which, if carried on by any body of professional men in the kingdom, would be denounced by the unanimous voice of public opinion as base, selfish, and tyrannical; and to ask how long it is to be tolerated that any body of men are, for their own purposes, to be permitted to carry out measures towards others which are contrary to common sense and common honesty, and which, whatever temporary standing-ground the present state of the law may afford them, are morally as completely at variance with the duty of one man to another, and to the State, as house-breaking or garotting.

THE STRIKE AT MESSRS. DOULTON'S.

SIR,—Will you kindly grant me a little space in your valuable columns for a few comments on what I hold to be a piece of modern despotism, a perverted right, and an insult to the high tone of Bricklayers' Trade Unionism? The origin of this turn-out has been well published in almost every paper; that the facts there stated are true, I have no doubt, I being in a position to obtain proof of their accuracy, as secretary of a trade-union lodge at the time.

Now, sir, under what pretext did this strike originate, and what say the rules of the London Order on this subject?

It appears that two men, originally plasterers, were put to set terra cotta (it is said by the firm to be terra cotta that would require greater skill than the bricklayer could produce; I will say more on this by and by). The rules of the Order say that the committee of any branch shall have power to authorise any member or members to strike work, if the employer attempts to reduce the rate of wages, to increase the hours of labour, or to put persons to lay bricks who are not of the trade. Now, sir, if those in authority can class terra cotta as bricks, then they have a pretext for this strike, but, since it is not bricks, nor anything akin to bricks, those that authorised this strike lay themselves open to public censure. Why? Because a man has been placed in a position to examine the rules of any society that shall apply to him for registration before placing it on the Government Register; and any society so registered misapplying its rules, to the intimidation and injury of any person or persons, lays itself open to censure. But there must be reason for this strike, some will say; and some will ask—does the whole of this society acquiesce with the action taken by those in authority? I cannot answer for the whole society, but I know that the executive approve of it; and this is where I blame bricklayers, the majority of whom approve of everything done by the E. C., being too indolent to question their policy. Now for what I conceive to be the reason for this strike. Three years have passed away without any material agitation on the part of Building Operative Trade Societies. It is well known by the leaders of these societies that on occasions like the present, should they be successful in carrying out their object, they will obtain a greater amount of popularity, which will assist them not only to retain their present positions, but help them in the future should an opportunity present itself of further advancement, or in the question of a bonus.

Now, at the present time, the leaders of this strike can be confident of success. Why? Because there never was such a demand for bricklayers in the history of the oldest unionist as at the present; therefore, if the members do not (and I would urge that they should) insist on the E. C. putting an end to this disgraceful bit of tyranny, it is plain that Messrs. Doulton must give in to the conditions of the strike.

Now, as to the assertion that bricklayers are not sufficiently skilled to fix terra cotta. This may apply to the men engaged at the time on the works; but I can venture to say that, if Messrs. Doulton wished for bricklayers to set it, there are plenty to be found. If skilled labour is required in an especial degree, I can advise Messrs. Doulton, and all other employers in want thereof, to apply to no better place than to the President of the Bricklayers' Technical Education Class, 29, Castle-street, St. Martin's-lane, where I am sure a genuine article will be supplied. And here, again, I would deplore the apathy displayed by the leading bricklayer unionists towards these classes. Had they come to the front when, at the beginning of the present year, I begged (through your columns) for their co-operation, they might have earned a name that would have been revered by posterity; they would have been helping forward a movement that would have raised the bricklayer in the eyes of architects and employers; and the bricklayer, in the confidence of his ability, would have repudiated the published statement that he was behind the plasterer in skill. Let our leaders look more to those objects that have for their aim the advancement of the general interest of the trade, and these acts of despotic tyranny will become a thing of the past, trade unions will then be looked up to by respectable and aspiring young men, and they will be appreciated by all sensible people.

I hope, sir, that my few remarks may not be in vain; but conduce to the speedy termination of what all right-minded Englishmen will call a disgraceful affair.

J. P. MORRIS, Manchester Order of Bricklayers.

P.S.—I have this week resigned my position as secretary of the London lodge.

Artisans' Dwellings at Walsall.—The Walsall Town Council agreed, on the 4th inst., to apply the Artisans' Dwellings Act to a part of the town containing 119 dwellings and between 500 and 600 inhabitants.

THE THAMES STEAM FERRY.

THE Society of Engineers recently visited the works of the Thames Steam Ferry Company, now in progress at Wapping and Rotherhithe, on which occasion Mr. Waller, the managing director, read a paper descriptive of the works. He said that the boats, of which the *Jessie May* is one, are built by Messrs. Edwards & Symes at their yard at Cubitt-town. The *Jessie May* is an iron-built vessel 82 ft. in length, 42 ft. in width on deck, and 8 ft. 9 in. in depth. With the exception of a slight curve in her sides, the vessel is nearly rectangular, and she can be propelled in either direction, being fitted with a rudder at each end. She has two separate sets of steering gear, each of which is worked from the top of each paddle-box, so as to give clear way on the deck, and to enable a good look-out to be kept. In order further to obviate deck obstruction, the funnels, of which there are two, are placed on each sponson near the paddle-boxes. The whole deck is thus left clear for three rows of wagons and carts, there being besides ample room for passengers and goods. Each vessel will accommodate twelve two-horse vans, and possess a carrying capacity of 50 tons. The engine-room, skylights, and hatches are placed between the cart tracks, and the whole of the machinery works clear of the deck beams. The vessel is fitted at each end with a hinged platform, which is raised and lowered by chains and winches, and which form, when hoisted up, the end bulwarks, and, when lowered, a connecting piece between the boat and the landing-stage over which the traffic will pass from boat to shore and vice versa. The boats draw 2 ft. 6 in. of water, and consequently cannot approach within 170 ft. of the Wapping Wharf at low water spring. An intervening bridge or prow was necessary, but the Thames Conservancy would not allow of any which had not a clear height of 8 ft. above Trinity high water. The rise and fall of the Thames at ordinary spring tides is 20 ft. It was an engineering problem, therefore, to devise a safe and expeditious means of transferring a boatload of horses and vehicles as well as foot-passengers, weighing some 50 tons, through a vertical distance of 28 ft. from the boat's deck to the floor of a fixed jetty, and to lower a similar load from the jetty to the boat at least once every quarter of an hour. The well-known hydraulic lift apparatus, with a single ram, could only deal with the traffic in detail, taking up and down but one or two vehicles at a time, and except by providing some six or eight of such lifts, and a large floating stage on which the traffic to and from the boats might be received, there was no possibility of the work being done in the quarter of an hour interval. Messrs. Clark & Stanfield proposed to bring the boat between two rows of hydraulic rams, somewhat similar to their Victoria ship-lift, and by suitable attachments lift the boat's deck with its entire freight to and from the required levels, and this, but for the necessity of carrying out the piers 50 ft. farther into the Thames, and so seriously interfering with the navigation of the river, would possibly have worked well. Another scheme was to have a large platform on which the traffic could draw from the boats, and a long winding drum on shore with eight or ten heavy chains passing from it over pulleys to as many attachments on the platform, the drum to be worked by a steam engine of about 120 horse power. The directors gave due consideration to these proposals, and one simultaneously submitted by Mr. F. E. Duckham, of the Millwall Docks. Mr. Duckham's lift was selected, and he was appointed the company's engineer for carrying out the works. In Mr. Duckham's scheme a jetty 100 ft. long, 19 ft. 6 in. wide for 60 ft., and fanning out to 33 ft. at the outer end, is formed by wrought-iron plate girders, supported on cast-iron screw columns. The proper floor of the jetty is to be set apart for vehicles, and for economy as to space and cost, as also for the comfort of the foot-passengers themselves, the foot-paths to and from the lift are placed on top of the side girders. A platform is provided of a sufficient area to accommodate both the outward and inward freight. Upon commencing its work the platform forms a continuation of the roadway and footpaths of the jetty. It is proposed that the outgoing vehicles occupy the two outside of the four ranks on the platform, and the outgoing passengers the top of the right-hand girder. As the boat approaches, the platform will be lowered to the deck level and the machine locked. The vehicles on the boat will then draw off to

the two vacant centre ranks of the platform, the foot-passengers to the top of the left-hand girder. The outgoing traffic will move on to the boat, the boat will leave for the opposite shore, the platform be raised to its first position, its freight transferred to the roadway, and the process repeated. To accomplish this a hydraulic engine of 25-horse-power is employed, supplied with steam by vertical boilers, 4 ft. 6 in. diameter, by 12 ft. 6 in. high, and having an accumulator with a 1 ft. 8 in. ram of 20 ft. stroke, loaded to 750 lb. per square inch, whence the hydraulic pressure pipes are laid to the valve-house on the stage, where the power is split up between four hydraulic presses, 1 ft. ram and 15 ft. stroke. To ensure the horizontality of the platform the presses are fixed horizontally on the cast-iron columns at the side of the lift, and their rams on each side connected by stout connecting-rods, so that the one cannot move without the other; 1½ in. pitched chain passes over two sheaves on each ram, one on the cylinder end, then round a pulley on the platform, and the chain end is made fast to the fixed girders on which the presses are supported. The pulleys on the platform are pitched to fit the links of the chain, and are keyed on two strong shafts which pass under the platform from one side of the lift to the other, and which shafts rotate as the platform is raised or lowered. The two ends of each shaft must rotate simultaneously, and the two rams on each side can only move in unison. For convenience in event of repairs, &c., the platform is formed into a pontoon which would float even with 150 tons added to its own weight. The screw columns, jetties, &c., were constructed by Mr. John Gibson, and were chiefly manufactured by Messrs. Hawks, Crawshaw, & Co., of Gateshead. The hydraulic machinery was made by the East Ferry-road Engineering Company, of Millwall.

The wall foundations were built in sections; under the accumulator and engine-house a solid mass of concrete has been filled in 26 ft. thick, extending over the whole surface, to receive the heavy weight to be put upon it. The engine and accumulator-house, with chimney-shaft 75 ft. high from the ground line, were built first, the river wall coped with Cornish granite; the part under the jetty being at the height of 8 ft. above Trinity high-water mark, as required by the Thames Conservancy Board, the other portion being 6 ft. above high water, to comply with recent instructions from the Metropolitan and Local Boards of Works.

In consequence of the river wall being carried up so high, and the bad foundations extending over the whole site, the directors, after careful consideration, decided to build vaults under the roadway from Wapping High-street to the jetty, and this portion of the work is now completed; the foundations for the walls have been carried down to the depth of 19 ft. below street-line, or 21 ft. below Trinity high water, and over the whole surface the ground has been excavated and concrete filled in to a depth of 6 ft. 6 in., to render the vaults free from damp; and, with a view to further security, a layer of asphalt has been put in the middle of the concrete to prevent any water rising, and this, being weighted with 18 in. of concrete, will, it is thought, prevent the water ever blowing it up. Arches on piers and cast-iron girders have been turned at the requisite height in two half-brick rings in cement, and the crown and haunches of the arches filled in with Portland cement concrete. Penryn granite trams and curbs have been laid down, the space between the trams being filled in with wood paving, and the footways will be formed on each side, and rendered in Portland cement. The gradient of the roadway, 1 in 16, is somewhat steep, owing to the great height required by the Thames Conservancy for the jetty to be kept up; but from the care taken in forming the roadway, no difficulty is anticipated with the traffic. The work to this point is now completed. The whole of the ground floor is given up to the roadways, the traffic on and off being kept distinct; various offices are provided at the entrance. The height of this floor will be 16 ft. from the floor of the jetty to the underside of the girder on the river front, and at the street front, 18 ft. to the underside of the crown of the arches. These large openings will be filled in with suitable revolving iron shutters. The floor over the roadway will consist of wrought-iron girders and bow-strings, filled in with concrete. The superstructure over the roadway and on the adjoining wharfs will, when completed, form a block of warehouses, six floors in height; at the level of the girder over

the roadway a moulded string of red Dumfries and Portland stone will be carried through, and above this the building will be in Kent stocks, with some red brick bands. The reveals to the door and window openings and arches will be in blue Staffordshire bricks, the whole finished with a moulded brick and stone cornice, with a centre gable. The warehouses will be fitted with hydraulic cranes.

The works on the Rotherhithe side have not been of so extensive a character. An accumulator-house and engine-shaft similar to those on the Wapping side, have been built, and the engine-house will shortly be completed. Improvements are being made in the approaches on this side, and negotiations are going on for the acquiring of more land for the purposes of a stand-by, and with a view to meet the projected improvements of the Metropolitan Board of Works in this neighbourhood. The whole of the building works have been done under the superintendence of the company's architect, Mr. Alexander R. Stenning, the general contractors being Messrs. Lee & Son, of Westminster, Messrs. Moreland & Son, of Old-street, supplying all the ironwork. Mr. W. W. Browne is clerk of works.

A NEW ROUTE TO INDIA.

THE project of a sub-marine tunnel to unite Europe with Africa has been published at Madrid, and has called forth much criticism. The tunnel would, of course, pass under the Straits of Gibraltar, but the precise spot chosen is near Algeiras on the European side. From here the coast of Africa would be reached at a favourable landing-place, between Tangiers and Ceuta. It has been calculated that the part of the tunnel entirely submerged would be nine miles long, with a descent towards the centre of about one per cent. The other and slanting portions of the tunnel would measure six to seven miles in length on either side, so that altogether the tunnel will be about twenty-two miles long. The maximum depth of the sea in the Straits does not exceed 3,000 ft., and it is proposed to dig 300 ft. below this point. Thus the tunnel will be 3,300 ft. below the surface of the water. As for the somewhat complex question of cost, the promoters of the scheme maintain that this will not amount to more than 4,000,000*l.* By this means, they urge, when the tunnel between Calais and Dover is completed, it will be possible to travel the whole way from London to India by rail, and without changing carriages!

BUILDING PROJECTS AT ST. PETERSBURG.

NOTWITHSTANDING the clouds on the political horizon, the inhabitants of St. Petersburg still find time to discuss various projects for the improvement of their city. Local authorities pass numerous resolutions in favour of the construction of innumerable new streets, and rely on the immense receipts which will, it is supposed, reward this labour when new and magnificent houses have been built. Unfortunately, the practical result of past and present enterprise is not very encouraging. It is, it seems, more easy to build houses than to find tenants; for there are now some 5,000 apartments empty in St. Petersburg. Two-fifths of these are estimated in value at a yearly rental of 500 roubles and upwards, while the remaining three-fifths of the total number are more modest residences, and consequently to be let at a cheaper rate. To continue building under these circumstances is evidently to court ruin; and though the local authorities in their unreasoning enthusiasm may continue to vote the construction of new streets, the Minister of the Interior will in all probability put a check to such unwarrantable enterprise. There are other projects of greater utility, which when accomplished will render the enlargement of the town not only practicable, but necessary. The construction of a maritime canal and the creation of a large mercantile port at St. Petersburg would soon increase the population, and thus fill the empty houses. Then it will be time to build new residences. The project of a canal and port of this description is included among the numerous new maps, topographical reports, &c., which have been prepared during the years 1873, 1874, and 1875. These were recently examined and approved by the Czar in person. Unfortunately, in Russia as elsewhere the monetary difficulty is after all the greatest of obstacles, and it is more

easy to obtain even the unanimous approval of a project than to find the means for carrying it out. It is calculated, for instance, that the draining and paving of the town will cost 20,000,000 roubles; and that if a loan is levied, as proposed, for this purpose it will augment the charges on the city budget to the extent of 1,200,000 roubles per annum, and the town is not in a position to support extra charges. There was already a deficit of 500,000 roubles in the last budget, and there are other schemes which demand public support. The present schemes for primary and compulsory education will cost at least 600,000 roubles, and the maintenance of the hospitals about 700,000 roubles. To meet these urgent demands it is probable that some insignificant but vexatious taxes will be abolished and compensated by a new and heavy tax on inhabited dwellings. It was also proposed to reduce the sum spent by the municipality for the salaries, &c., of the police and gendarmes; and, as this item amounts to no less than 1,120,000 roubles per annum, it will bear reduction. In the meanwhile tradesmen and small proprietors are already indulging in loud complaints against the high rate of taxation, so that altogether, and when we add to these facts the prospect of political complications in the East, we may confidently urge that this is scarcely a favourable moment to choose for the *Hausmannization* of St. Petersburg.

ROYAL HORTICULTURAL SOCIETY.

THE following scheme for reconstituting this Society has been made public. The plan, it is stated, now finds favour with many leading horticulturists, who long thought it, if not unadvisable, at least premature:—

"The Society is now doing important and useful work, which benefits all who value their gardens, or who care for fruit, vegetables, or flowers. The scientific committee is now the recognised authority on all subjects connected with plant life, disease, and plagues, and does much other valuable work. Its fruit and floral committees examine new fruits, vegetables, and flowers, work which can only be done by a great central society; their judgments, immediately published by means of the gardening press, are now received with respect, and acted upon all through the country. In the Society's garden at Chiswick, flowers, fruit, and vegetables are grown side by side, are tested and judged by the highest authorities, and troublesome synonyms got rid of. The Society, being relieved from the heavy charge of South Kensington, will have only Chiswick garden to keep up, and to provide for shows and committee meetings, if possible at South Kensington, otherwise in the neighbourhood, the great country shows will be self-supporting. The guinea subscription will enable good horticulturists to come into the Society from every corner of the kingdom. It is hoped that some of the old supporters of the Society who have paid their five-guinea subscriptions will at least for a time continue to do so, and that some wealthy and enthusiastic horticulturists will join their number. The subscribers of not less than four guineas will be called patron fellows. As soon as the Council of the Royal Horticultural Society can arrange with her Majesty's Commissioners of 1851, in the interests of the debenture-holders, the lease of the South Kensington garden will be surrendered, and it may be expected that the subscriptions of those fellows who paid to get the exercise-ground for their children will be discontinued. It is therefore most desirable that new fellows should be in readiness to supply their place. It was lately suggested to form a large and influential committee, headed by the editors of the four leading London horticultural journals (to show unanimity of feeling at least in the leaders). This committee to bind itself in nothing, but to aid in bringing in guinea fellows when the society is freed from its present incumbences. Three out of the four editors have given their names, the fourth, being secretary of the society, can hold no other position. Very influential gardening names have already been received and are constantly coming in. It was decided not to publish names till the list was a very long one. The privileges which can at the present be stated as accruing to the guinea-fellowships are admittances to all the Society's shows in London and in the provinces, and to all minor exhibitions of fruit and flowers held at the fortnightly committee meetings, and daily admission to the Chiswick garden (Sunday excepted)."

THE NEW WATER-SUPPLY FOR WARWICK.

THE borough of Warwick was, on the 27th ult., supplied for the first time with water from the new works at Haseley. The town of Warwick has had considerable difficulty in connexion with its water-supply. After spending 1,100*l.*, and boring to a depth of 400 ft. near the workhouse, the local authorities obtained water from the Avon, which river at that time received the sewage of Rugby, Coventry, Kenilworth, Leamington, and other places. From the year 1857 until the present time the borough has had an intermittent supply from the Avon, the works costing 14,627*l.* 18*s.* 7*d.*, and the annual expenditure during the past three years being 644*l.* 12*s.* 11*d.* The Avon supply having been repeatedly and authoritatively condemned, the Town Council commissioned Mr. E. Pritchard, C.E., to seek another source of supply. He pro-

pounded the Haseley scheme, which was approved by Messrs. Cawley & Newton, engineers, and in 1872 the Corporation obtained the Warwick Waterworks Act, empowering them to take lands, and construct the required works for getting water from Haseley. No pumping is necessary, the water flowing into the town by gravitation. Haseley Mill, the site of the abstraction of the water from the brook, is four miles from Warwick, on the Birmingham side. The level of the brook is 100 ft. above the highest level of the borough. About twelve acres of land have been acquired, and the area of the available watershed is 1,500 acres. After filtration the water passes through a brick conduit, of oval form, 3 ft. 6 in. by 2 ft. 6 in. 1,661 yards, long. From the end conduit the water is conveyed through a 12-in. cast-iron main, 736 yards in length along the Beausale, Birmingham, and Warwick roads, and from thence to the water-tower, 4,281 yards, through a 10-in. cast-iron main.

Mr. Pritchard's estimated cost of the work was:—Cast-iron main, valves, &c., 2,886*l.*; reservoirs, filter-beds, conduit, fencing, laying of mains, &c., 10,113*l.* 13*s.* 6*d.*; compensation, purchase of land, &c., 4,500*l.* These items make up the sum of 17,500*l.*; but the actual outlay will not be far below 25,000*l.* The difficulty experienced in the deep cutting, where the main is placed at a maximum depth of 48 ft. below the surface, led, as already stated, to the abandonment of the work by Mr. C. Hart, of Leamington, who has commenced proceedings against the Warwick Corporation. This work and the making of adits, reservoirs, &c., have been performed by Mr. G. F. Smith, of Milverton. The iron pipes were supplied by Messrs. J. & T. Roberts, West Bromwich, and the earthenware pipes by Doulton & Co., of Lambeth. To prevent sand passing through the perforated pipes of the adits there is provided a filter medium of washed gravel and sand, of a thickness of 4 ft. 6 in. and 3 ft. in width. The sand and gravel are placed in layers round the pipes in the following order:—Washed gravel, of the size of hens' eggs, for a thickness of 2 ft. 3 in.; washed gravel, of the size of walnuts, for a thickness of 9 in.; washed gravel, the size of horse-beans, for 6 in.; and washed sand 1 ft.; total thickness, 4 ft. 6 in. Great difficulties were encountered in controlling the sand, and the contractor had to supply a plant of the value of 2,500*l.* for the execution of the work. The ceremony of turning on the water was performed by the Mayor.

PROPOSED NEW SEWERAGE WORKS AT WALSALL.

AT a special meeting of the Walsall Town Council lately, the Mayor said the first business was of great importance, and had been forced upon the Council by the provisions of "The Rivers Pollution Prevention Act, 1876," by which every person (including a Corporation) who, after the 15th of August, 1877, causes to fall or flow or to be carried into any stream any solid or liquid sewage matter, unless he proves to the Court having cognisance of the case that he is using the best practicable and available means to render harmless the said sewage matter, will be liable to be restrained from so doing by a summary order of Court, and in default of compliance with such order will be subject to a penalty of 50*l.* a day for every day during which he is in default. For a long time now the course which they had been pursuing in reference to getting rid of their sewage matter by means of the River Tame had been contrary to the decisions of the courts of law, and they now found that an Act of Parliament had made it compulsory to alter that state of things. They had not much time given them to put their house in order, and as it was necessary that the subject should be taken in hand at once, he moved the following:—

"That the time having arrived when it has become absolutely imperative by the legislation of the last session of Parliament, embodied in the 'Rivers Pollution Prevention Act, 1876,' that effectual measures shall be adopted for preventing any solid or liquid sewage from flowing from the sewers of the borough into the stream or brook, and the Borough Surveyor having had under his consideration the question of the disposal of the sewage of the borough so as to avoid the pollution of the neighbouring streams; and having had also under his consideration the necessary extension of the main outlet sewer, near Bodley's, to land in or near the Tame Valley, the Sanitary Committee is hereby authorised and requested to make a careful inquiry into the whole question, with power to engage such professional assistance as they may deem necessary, and to report to the Council as early as practicable their opinion as to the best mode of dealing with the sewage of the borough."

The resolution was adopted, and the town clerk read a report from Mr. W. J. Boys, the borough surveyor, which stated that the works contemplated were a deep intercepting sewer, commencing at the present outlets, near Bodley's, and following the valley of the Tame to land situate near Delves Green, the total length being 3,960 yards, and the gradient 1 in 2,000. This sewer would enable the council to thoroughly drain the lowest parts of the borough, and would enable them to deal effectually with the sewage without pumping, the outlet being 10 ft. above the bed of the Tame. The point of outlet was also the nearest to sufficient land for the necessary works, and was at such a distance from the town and any highway that no complaint of nuisance could arise, and where the land, which would be a considerable quantity, could be acquired on advantageous terms.

TECHNICAL EDUCATION IN THE IRON TRADES.

At the meeting of the Iron and Steel Institute, recently held in Leeds, Mr. John Jones, the secretary, read a paper on "Technical Education in connexion with the Iron Trades." Providing facilities for imparting technical knowledge had of late by no means been lost sight of or neglected, but we had not yet got so far as several other countries had done. There was one way in which he thought substantial aid might be rendered in extending existing arrangements for imparting technical knowledge. The Commissioners for the International Exhibition for 1881 had a surplus of 180,000*l.*, out of which they proposed to expend 100,000*l.* in providing a scientific library at South Kensington, and in creating scholarships in connexion with the Science and Art Department. The paper on this subject remarked that it did not seem just to concentrate the contemplated expenditure in London. Mr. Jones maintained that the commissioners would be carrying out the spirit in which such a fund should be administered if they were to render assistance, within certain limits, to the science colleges and institutions in the principal manufacturing and industrial districts, and to encourage the opening of new colleges in other localities. The proposed scholarships would be best localised and made tenable at the provincial colleges and institutions. As to the form in which aid should be given to local science colleges, it would evidently be injudicious to make a grant in money towards buildings. The assistance should rather be in the form of a loan, so that the property could revert to the commissioners in case any particular institution ceased to exist.

The President (Mr. Menelaus) said that as the House of Commons would have finally to decide this matter, it was a happy circumstance that they had several members of Parliament present, and he hoped they would favour them with their sentiments on this subject.

Mr. Barran, M.P., spoke upon the efficiency of the Yorkshire College of Science, although it had but recently been opened, and said he hoped all the funds in question would not be devoted to establishing a technical institution in London. He believed the greatness of the nation depended as much upon the education of the sons of employers and capitalists in scientific matters as upon making the working men skilful and thoroughly educated. In the Yorkshire College they had nearly 300 students, and he claimed for it that it was second to none, considering the short time it had been open.

Mr. Samuelson, M.P., thought Mr. Jones's proposal was essentially a just one. He did not think that hitherto the administration of the fund had been altogether what the country had a right to expect, and he was very much afraid, unless some strong measures were taken to bring about a change in that administration, they must not expect justice or anything else. The fund would have been seven times larger than it was if the ordinary rules of prudence had been observed in the management of it. The Albert Hall was one of its results, and it was nothing but a source of difficulty and anxiety to all connected with it. Funds had been spent in buildings which had not answered the purpose for which they were intended. It would be useless, however, to make grants of the kind contemplated by Mr. Jones until the elementary education of the working classes had been more improved and extended. Colleges of science like that in Leeds, or like that in Newcastle, or such as Owens College in Manchester, were all ex-

ceedingly useful, but until the general education of working men was better cared for and got to a higher point, it would be in vain almost to attempt to impart to them technical education.

Mr. Brogden, M.P., did not think it would be so difficult to get grants from this fund for local institutions. He knew some of the commissioners were desirous of using the funds in the way which would best promote scientific training, and he believed it only required an outside expression of opinion to get from them an application of the funds to provincial purposes.

Mr. Lowthian Bell, M.P., thought that as regards the deficiency of primary education, thanks to a gentleman living in the neighbourhood of Leeds, the evil was about to be remedied, not in what he considered the very best way, but it was a step in the right direction. With respect to the iron trade of this country he spoke most hopefully, and predicted that England would for all practical purposes continue in the future, as she had done in the past, to take the lead in the manufacture of iron and steel.

Mr. Tennant, M.P., said he should be happy to co-operate in getting a share for Leeds or any other provincial centre of the fund it was intended to devote to technical education.

THE OFEN ROYAL PALACE OF THE FUTURE.

SOME time since the official Hungarian journal made known the Royal decision that the Ofen fortress should be divested of its character as a fortification, the fetters cast off which for so long had prevented the enlargement of the Hungarian capital on account of its encircling stone walls. This capital will become a great city worthy of the residence of a monarch. In order to make Buda Pesth a fine city, the Hungarian Parliament contracted a loan of twenty-four millions of florins, and has been making the greatest exertions for the improvement of the city. The great road which, going from the Danube, divides the city into two parts, and then again turns back towards the strand of the river, will be converted into a boulevard after the Parisian model. The thickly-populated portion of the city, called the "Theresa Town," will be intersected the length of the third of a German mile, and from the little wood without the town a stream of healthier air will be let into the arteries of this crowded nest of houses. A "Ringstrasse" like that of Vienna will encircle the whole town as a girdle, new railway stations, several miles of tramway for local convenience, two new bridges on each side of the chain bridge over the river,—all these are to be undertaken; in fact, since the coronation of the king, in 1867, it has been the constant aim of the people to accomplish these improvements.

The fortifications of the Ofen fortress prevented the city on the right side of the Danube, till now, taking the interest in the improvement of that half of the city which the left side created. On the Ofen side nothing has been undertaken but great quays half a mile in length; but the perpendicular high walls of the fortress, with their ugly bastions and grim battlements, were so protected by the military *noli me tangere* decrees against any changes which the wish of the city for its amelioration or adornment could suggest, that nothing could be attempted. The Royal Palace on the south side of the Fortress-hill will be the first fruit of the decision, and the first building undertaken.

In a semicircle of vine-clad hills stands this fortress,—the dearly-bought prize of many a deadly struggle. Thence will be seen the restored King's Palace, the rapid Danube, and on its opposite shore palace on palace; tributary town on town; from each end of the palace also vast towering chimneys; from amidst the church towers daily, rising to the blue heavens, the incense of the growing effects of civilisation; the sound of the blow of the anvil; the roaring of machinery,—the peaceful Cyclopean work of modern times. These represent the organ music of the worship of progress.

The view from the Palace, also, is very grand; but on the fortress side it is spoiled by the ugly Danube quays, as yet showing little else but the loading and unloading of wagons to and from the steam-barges. But there is in progress a charming park-like terrace on the sloping side of the palace, and a project of widening the palace itself is on the tapis. Already one wing is built out, elegantly decorated with white and gold,

where the Royal family stay when they visit the Hungarian capital. The carrying out of all these projects, which has the hearty consent of the Emperor, will be forwarded as soon as the funds can be raised.

THE VOLKSGARTEN ARCADE, VIENNA.

No European capital has in so few years carried out so many changes and improvements as Vienna. After the demolishing of the old walls it became the aim of the Viennese to set to work to replace them by handsome streets and squares.

In speaking of New Vienna, uppermost arises in the mind the "Ringstrasse." Of course, many of the vast undertakings commenced have not been as yet fully accomplished, but in the gaps that intervene, pearl on pearl is being strung in order to collect the entire row. The finest part of the Ringstrasse will unquestionably be that part in which the Town-hall, the Parliament-house, and the University form three sides of a square.

When the discussion as to the position of the Royal Opera-house was being carried on, and the proposition to place it within the Volksgarten made, Baron Hasenauer, one of the first of the many able architects of Vienna, and the builder of the Exhibition, stepped forward to protest against the plan, and suggested that the incomparable square of the town-hall should have its fourth side filled with the new theatre.

To realise this idea, great difficulties would have to be overcome, parts of streets to be demolished, and so on. But Baron Hasenauer, undaunted, urged his opinion on all, declaring it certain that the Royal Theatre could stand in no better place, and also that the quarter in its vicinity must necessarily be rebuilt, and in harmony with the splendid new building. This, of course, met with the consent and approval of all intelligent men, and soon, it is to be hoped, the whole of the project, including that of which we give a sketch, may be carried out.

In order to make room for all these buildings, the last remains of the walls of Vienna,—the renowned Lion Bastion, must disappear,—a spot on which, in the war with the Turks, the most bloody and determined struggles took place. Later must be removed the Palace of Prince Lichtenstein, in which the first Supreme Court of Judicature was held; the Palace where resides the English Ambassador; the fine Admiralty Office, in which one of Austria's best sons, Admiral Tegenhoff, breathed his last; and, finally, the Royal Palm-house.

According to Hasenauer's plan, the street which runs at the back of the Opera-house is to be widened to 60 yards, the little narrow Löwengasse to 40 yards. Down towards the once well-known Bellaria, from the theatre, a magnificent frontage can be acquired. Hasenauer desired more especially that his project should be carried out, seeing that Vienna, unlike Paris and most of the large cities of Italy, was devoid of an open promenade, where, at the same time, shelter from the rain could be gained; in short, it had no covered public walk.

The group of houses he projected to erect on this ground are to have arcades having immediate correspondence with the Volksgarten, in a way leading to it, the buildings at one end being only divided from it by a narrow street, on one side of which is a railing through which it may be seen. The terrace of the arcade is to be adorned with flowers and shrubs. Under the arcades are handsome shops and refreshment-rooms. The whole range of houses will be divided into five parcels; two fine buildings projecting somewhat from the rest, at each end; in the centre a building dominating over those at each end, while the two intervening rows of buildings that connect them stand back. The style is that of the Italian Renaissance.

Through the centre a handsome passage will end in the Kreuzgasse, and lead to the Minoritenplatz.

The Sewage of Kingston-on-Thames.

The Thames Conservancy applied on the 28th ult. to the Kingston County Bench for a summons against the Corporation of Kingston-on-Thames, for having neglected, within the statutory periods, to withdraw the sewage of the town from the river Thames. It was stated that the penalties claimed were 50*l.* a day for something like 2,000 days. The summons was granted, and made returnable a week hence.

IMAGINARY CONVERSATIONS.

MR. SERJ. PARRY AND A "JERRY BUILDER."

"For among my people are found wic'ed men: they lay wait, as he that setteth snares; they set a trap, they catch men. As a cage is full of birds, so are their houses full of deceit; therefore they are become great, and waxen rich."—Jer. v. 26, 27.

You are a master builder, are you not, and the builder of those houses which are characterised as run-up, and of the "Jerry" class?

Now, Mr. Master Builder, what constitutes good building?

Is mortar composed of three parts of clay or loam, with a little sprinkling of lime, a good bedding mortar for brickwork?

Is wall plaster, made up of road scrapings, screened ashes, vegetable mould, or ordinary "shoot" material, a proper floating or rendering stuff for the coating of walls?

These houses that are being built by you have not been planned by any architect?

No; but they are built, you say, according to a plan now very much followed over the metropolis? In the present instance, according to your statements, you have improved upon the usual stereotyped plan by economising materials, and adding to the available space?

You say they are good of their kind,—that is, they are good enough for "Jerry" houses,—good enough for the class of people they are intended to accommodate; but, let me ask you, is any class of builders privileged to build houses ill-planned and in violation of the Building Acts and sanitary regulations, and to put up staircases that endanger life and limb?

No answer. Well, then, I will not press you further on that head; but you are prepared, I suppose, to answer a few questions as to the thickness of your doors, sashes, and the timber scantlings used generally in the carpentry and joinery work of your houses?

Turning to another point, let me ask you, what constitutes ordinary brickwork for front walls?

In the building of several of your houses in certain places, particularly in partition work, I believe you preferred the brick laid on the edge, as it tended to the economy of space and the quickness of workmanship, as well as the saving of materials?

Yes, yes, I quite understand. Motives of humanity and philanthropy may have induced you to give your future humble tenants as much room as possible, and houses at very low rents; but were there no personal interests influencing you—you built, did you, solely for the public good?

A very benevolent motive, in sooth; but unfortunately, as we have seen, your philanthropic motives are misconstrued by callous and suspecting newspaper critics, by medical officers of health; and those unsympathising fellows called district surveyors pounced down upon you, and your benevolent motives underwent a change?

Not having the fear of the Building Act before your eyes, you treated it as a dead letter by running your head against its provisions?

No doubt. A man can build as cheaply as he likes, and in whatever way he likes, if he build solely for his own pleasure, but not for others' occupation. He may build to sell, but not to kill; for the buyer can punish the seller who attempts to obtain money under false pretences. I'm here, however, not to argue with you, but to interrogate you.

Now, as to the foundation of your houses. Is it true, or is it not, that you have dug down to between 6 ft. to 8 ft., and more in some places, removed the sand, and sold it and the shingle, and, though you had plenty of sand on the site, you used little or none of it in the plastering of your walls?

In fact, you filled up the excavated pits or spaces between your walls with the refuse of dust-bins and other rubbish and scavenger matter, and you also utilised a large portion of this stuff and road-scrapings for your wall-plaster?

In using this material you say you only acted as others have done and are doing, and that it is considered not bad material?

Please tell the jury what constitutes good mortar,—that is, mortar with cementing and hardening qualities.

Is it not necessary that mortar should be composed of clean sharp sand and lime in certain well-defined proportions; and, in the absence of river sand, should not pit sand, if used, be washed, so that no particles of clay or loam should remain? Come now, Mr. Builder, tell us

is this mortar used in the brickwork of your houses much better than road mud?

Do you know what hydrate of lime is, or what is carbonate of lime? Well, do you know what is slaked lime, and what it is converted into after it is mixed with sand and acted on by the atmosphere?

I suppose, then, there is no use in asking you what is carbonic acid gas, and if carbonic acid would be equally good in effecting the hardening of mortar as the former?

You say you're not a "pothecary,"—chemist you mean. I am pretty well aware that you are not; but you are a Master "Jerry," according to your own admissions, who believes common clay, loam, or road mud mixed with a little lime, makes a mortar with wonderful cementing qualities?

Of course, you treat your plaster in a similar manner as you treat your mortar. Coal-ashes and road-scrapings warmed up with a little lime, floated on your walls expeditiously, makes, in your opinion, an admirable "sticking plaster"?

Do you know how to cure a smoky chimney? Oh, no. You are not a chimney-curer; you are only a constructor of chimneys that act with a draught downwards instead of upwards.

May I ask you what is the exact size of the principal rooms of your houses? Leaving out the recesses formed by the "gentee" bay-window to the front parlours of your houses, are these rooms much more than 6 ft. by 8 ft., or do they even amount to those dimensions?

Your rooms, then, if not very commodious, are very compact. Pretty self-contained little parlours, fitted up with ducky little cupboards, and when a medium-sized table is placed in the centre of the room and the tenants sit down to a meal they may lean their backs against the wall. There is, of course, no danger of suffocation in your parlours; though they are small they are neat, and the rooms are well ventilated by "cracks," settlements, shaky doors and sashes?

You have heard, I suppose, before now, the celebrated song of "The Spider and the Fly"?

You may have heard it, you say, but you forget. Well, I'll refresh your memory,—

"Come into my parlour, said the spider to the fly,
'Tis the prettiest little parlour that ever you did spy.
If you only put your head just inside of the door,
You'll see so many curious things you never saw before."

Now, Mr. Builder, is not that a faithful description of your ducky little parlours, constructed *pro bono publico*, and each a *multum in parvo*?

What is the scantling or the dimensions of the timbers that form your joists, partitions, rafters, ceiling joists, and the stiles and rails of your doors and sashes, and can you deny that the timbers are green and unseasoned?

Without going through them all *seriatim*, can you deny that your hall-doors are under 1½ in., and that a large number of your inside four-panelled room-doors are not more than 1½ in., and in several instances only full 1 in. in thickness? Can you deny that your window-sashes are under 1½ in., or, to speak more plainly, a something between 1 in. and 1½ in. in thickness?

Are not your flooring-boards between ½ in. and ¾ in.—at most? Now I will let you tell the jury yourself the dimensions of the timber forming the joists, partitions, roof, ceilings, &c., and when you have done I'll compare notes with you.

What fall, may I ask you, have your house-drains, and are they connected with the street sewer; and are all the joints watertight, and with what materials are the joints made?

The ordinary fall, you say?

The parish surveyor, you have heard, holds a different opinion. From what he says they appear to be on a zigzag level, and, taking the whole length, they indicate the fall rather in the reverse direction.

How do you account for that? Has there been a landslip, a settlement in the natural or rather the unnatural soil, as well as a settlement in the work of some of your houses?

'Tis the fault of the parish authorities. Oh, is that it? We are, then, to believe they made a mistake in the level of the street sewer, which is likely to drain into your house-drains instead of your house-drains into that?

I suppose you know what gravitation means? You evidently do not believe in its laws, or you have made a wonderful discovery. In fact, Mr. Builder, if your plan of draining houses succeeds, you will eclipse Pythagoras, Archimedes, and the rest. Water heretofore found its own

level, but you will make it gravitate upward, minus what leaks out at the joints?

I will not detain you much longer. Answer honestly this question. Is not there a large amount of the work of your houses known as "scamped" work, and such as would not be performed by any respectable London building firm?

It may not be your fault, but it is your misfortune (perhaps I might have said your fortune, in many instances) to have engaged in "Jerry" building. In view of this and of the perils and profits belonging, you run the gauntlet of sanitary laws and Building Acts.

ROCK-CONCRETE SEWER TUBES.

An article that promises to be of great use in the construction of main sewers has lately been introduced by Messrs. Hy. Sharp & Jones, of Poole, Dorset, proprietors of the old-established Bourne-valley Stoneware Pipe Works, near that town. The firm, not content with producing a stoneware pipe up to 18 in. diameter, are now also making large sewer tubes of almost any size, the material being a certain mixture of Portland cement and other material, to which they have given the name of "Rock-concrete." The joint is formed in the thickness of the tube itself without any projecting flange, and the spigot and socket are so fitted as to allow space for a thin packing of cement in the joint, which once made becomes homogeneous with the tubes themselves, forming, it is maintained, a perfectly water-tight sewer, smoother and sounder than any cement-lined brick sewer. In the process of manufacture the tubes take a very smooth face, which, from the nature of the material, hardens, it is believed, still farther in use. Junctions—so often useless in main drains through having been originally wrongly placed or with a wrong-sized connecting socket—are with these tubes unnecessary, as the latter may safely be cut in any place, the branch stoneware pipe inserted, and the joint made good with a little cement. There being no outside projections, the tubes are easy to bed, truly taking a bearing throughout their whole length, and Messrs. Sharp have made the 24-in. size with a flat base, which shape has its advantages.

There is a prospect of these tubes being utilised in some places for water-supply, and they have, besides a great difference in cost, the further advantage over iron pipes that they neither spoil nor are spoiled by the water that passes through them. The makers are themselves now using the tubes under a 12-ft. head of water, and are confident of being able shortly to recommend them for greater pressures.

NORFOLK AND NORWICH
ARCHÆOLOGICAL SOCIETY.

THE annual meeting of the members of the Norfolk and Norwich Archæological Society was held at the Guildhall, Norwich, on the 22nd ult., the chair being filled, in the absence of the president, the Very Rev. the Dean of Norwich, by the Rev. J. Lee Warner.

The Rev. C. R. Manning read the annual report, which referred with satisfaction to the progress of archæological studies in the county, and announced the publication of the third part of the eighth volume of the "Original Papers" of the Society.

Mr. Fitch read the balance-sheet, which showed that the year commenced with a balance at Messrs. Gurney's, the bankers, of 212l. 6s. 4d. on the general account, and 63l. 3s. 4d. on the deposit account; the subscriptions amounted to 80l. 12s. 6d., and the sale of publications produced 17l. 2s. 3d. With 3l. 4s. 5d. added for interest, the total receipts amounted to 386l. 8s. 10d. At the end of the year there remained at Messrs. Gurney's a balance of 234l. 9s. 10d. on the general account, and of 64l. 4s. 10d. on the deposit account.

The report and balance-sheet having been adopted, the Very Rev. the Dean of Norwich was re-elected president for the ensuing year; and Mr. Fitch and the Rev. C. R. Manning were also re-elected treasurer and secretary.

There was no other business to be transacted, and the members adjourned to the Norfolk Hotel, where conveyances were in readiness to take them upon an excursion to Trowse and Whitlingham, Framingham, and Arminghall.

Trowse Church was the first place visited, the party being received there by the Rev. A. Pownall. Some information as to the antiquity

of the church was furnished by the Rev. C. R. Manning, who stated that the chancel of the church was rebuilt by William de Kirkby, Prior of Norwich from 1272-80, and the east window, which is of that date, has some Early Geometrical tracery. There is nothing remarkable about the church, which was altered in Perpendicular times.

The churches of Kirby Bedon, two miles distant, were next visited, and some notes were read on them by the Rector, the Rev. R. Kinder. In these it was stated that, according to Blomefield, Kirby signifies dwelling at the Kirken or churches; and Bedon, or rather Bidon, the name of the ancient lords of the manor, was added to distinguish it from another Kirby in the county. There were two churches here before the time of Edward the Confessor. Helenald de Bidun was lord of the manor about 1150, and John de Bidon, the last of the name, died without issue about 1250, when the barony and estate were divided among his five sisters. It appeared, however, to have been re-united under John de Saham about 1300, and from him obtained the name of Saham's manor, which it now retains. In 1604 the manor belonged to Owen Shepherd. There is a mural monument in the chancel of St. Andrew's Church to Robert Shepherd and Anne his wife, dated 1600, bearing the carved figures of a man and woman kneeling at a fald-stool. Robert Shepherd sold the manor-house known as Kirby Hall, and demesnes, to a Mr. Cock, of Norwich, who disposed of them to Captain Nicholas Rookwood. The Rookwoods are interred on the north side of the chancel, and in the east window are two of the Rookwood coats of arms. They sold the estate to the Bernays, whose burial-place adjoins that of the Rookwoods, and was formerly enclosed by a building entered by a door from the north side of the chancel. This building, called in Blomefield a dormitory, becoming dilapidated, was pulled down by the representatives of Sir Hanson Bernay, during the incumbency of the Rev. E. Day, and the space enclosed with iron railings.

Mr. Gunn was of opinion that the ruined church, which is dedicated to St. Mary, is of Saxon date, from the fact that the quoining was in some places done with rude lumps of flint, and not with freestone.

Mr. Phipson thought that the date of the church was not earlier than the thirteenth century, and he attributed the use of flint to the scarcity of freestone.

The rector invited the party, before leaving, to partake of his hospitality.

Proceeding to Framingham Pigot, the party first visited the church which Mr. G. H. Christie erected a few years ago at a cost of 4,500*l.*, and then accepted an invitation to the hall, where they found much to interest them, and had a most hospitable reception accorded them by Mr. Christie.

On the church of Framingham Earl, which the company next visited, a paper was read by the Rev. C. R. Manning. In the churchyard are interred the remains of Edward Rigby, M.D., of Norwich, who planted the landscape around Framingham, which fact supplies the meaning of his epitaph:—

"A monument for Rigby do you seek,
On every side the whispering woodlands speak."

Arminghall church, which is now undergoing repair, and Arminghall Old Hall, which is divided into two dwellings occupied by workmen, and is an interesting piece of Domestic architecture, were the final places visited. With respect to the latter, Mr. Fitch read the following notice:—"It is an Elizabethan house of timber and moulded brick, with sunk panels, pillars, &c., of that period. The materials of an older building are worked up with these, and Cotman mentions a tradition that some of the materials were brought from Carrow Abbey. The entrance doorway to the south porch is good and rich, decorated with two figures in niches on each side, having ogee canopies, pinnacles, crockets, and finials. Another doorway at the back has very bold and good foliage of the vine sculptured in the jambs. The lintel is of wood, carved in imitation of the stonework. There is a similar foliage in the large doorway. The doorway under the porch is good Perpendicular, with the original oak door having the date carved upon it. Over the doorway is a sunk panel filled with sculpture of a man pulled off his horse by a lion."

The excursionists on their return to Norwich dined in the evening at the Norfolk Hotel.

CLOCKS AND BELLS.

Long-lane, Derbyshire.—A large quarter-clock, with two dials, has just been placed in the parish church here. Three new bells have also been put up in connexion with the clock. These are chimed in a novel manner, on account of the cramped situation. Mr. Smith, of the Midland Clock Works, Derby, executed the whole of the work.

Oldham.—A new clock, chimes, and carillons have just been fitted up in the tower of St. Mark's Church, Glodwick, Oldham, by Messrs. Gillett & Bland, of Croydon. The clock strikes the hours upon a bell of about 8 cwt., and chimes the celebrated St. Mary's, of Cambridge, chimes every quarter of an hour on four other bells, and shows the time upon four 4 ft. 8 in. skeleton iron dials, glazed with opal glass for illumination. The carillon or chiming machine is placed in the chamber below the clock, to which it is connected by a wire for the purpose of letting off the tunes at the proper intervals. It plays fourteen tunes on eight bells,—a fresh tune every day for fourteen days. Each tune is played three times over every three hours, at six, nine, three, and twelve o'clock day and night, the change of tune taking place at midnight, by a self-acting arrangement. The machine also has a barrel pricked with changes similar to ringing a peal, which is used automatically for the services of the church on Sundays, rendering the employment of ringers unnecessary.

Bray.—The bell-ringers of Bray Church, between Maidenhead and Windsor, lately struck during the temporary absence of the vicar from the parish. The churchwardens were, however, equal to the emergency, and caused a set of chiming hammers to be fixed, and these are now used with the bells, while the occupation of the ringers has gone.

Alnwick.—The Town-hall clock of Alnwick has lately been repaired and renewed by the chamberlain and common council of that borough. Entirely new works have been placed in the clock-tower. The new clock-work has been supplied and fixed by Mr. F. Evans, of Handsworth. The entire works have been carried out under the superintendence of Messrs. T. Robertson & Sons, of Alnwick; and, besides Mr. Evans, the other contractors employed have been, Messrs. Armstrong, Brothers (mason-work), Messrs. Renssion (painting and glazing), and Messrs. Thompson & Wright (plastering, &c.).

Cologne.—The bell of the Imperial clock of Cologne, called the "Silent," made from French cannon, has always, it is said, stopped at the sixth stroke, notwithstanding the efforts made to remedy the defect. The authorities of the city have, therefore, resolved that it shall be melted for another purpose, and replaced by a bell in bronze.

Ellingham.—The church-bells at Ellingham, near Bungay, have recently undergone extensive repairs at the hands of Messrs. G. Day & Son, of Eye. The bells have been entirely rehung, the three large bells turned, and a new treble-bell, cast by John Warner & Son, has been added.

Uthorpe.—The parish church here has just received an addition, in the form of a new set of chiming-machinery, which plays seven tunes (one tune for each day of the week). The work has been carried out by Mr. Smith, Midland Clock Works, Derby.

Tibenham.—The church-bells at Tibenham, said to be the finest peal of six in the county of Norfolk, have recently been rehung by Mr. Day, of Eye.

Pontefract.—A new machine for chiming church-bells has just been fitted up in the tower of Pontefract Old Church. It is the invention of Mr. Shaw, of Bradford, and is stated to be so constructed that "rising" can be effectually imitated, as well as "round-ringing" and "chiming-in." The machine occupies a space about 2 ft. square, and is formed entirely of iron and brass. It can be made to suit any number of bells.

Working Men's College, Blackfriars-road.—The night schools and evening classes were re-opened on the 25th ult. The new elementary French and German classes will be taught by Dr. Muller, of the Stationers' School. The Civil Service class meet three times weekly, under Mr. Gibbins, of the Civil Service. Besides these, there will be new classes for drawing, Latin, literature, mathematics, grammar, history, &c.

THE CHURCH AND SOCIAL SCIENCE.

At a conference of the members of the Rural Deanery of Liverpool South, held on the 28th ult., the Rev. W. Lefroy read a paper on "The Church and Social Science." In the course of his observations, he remarked that it was just because the work of the church was exclusively with the souls of men that he claimed their sympathy on behalf of science. The work of the clergy was injured by social ignorance, and every pastor found his work hampered by ignorance, extravagance, and intemperance, and to reduce their dimensions was the whole work of social science. In that, science was the handmaid of religion, and therefore it would ill become the clergy to stand coldly by in the matter. He counselled the inculcation of habits of frugality, which, in his opinion, must begin with the young; and he referred, as one means of securing the object in view, to the establishment of penny banks. In that respect Liverpool was far behind Glasgow. Again, the personal habits and amusements of the people might concern the Church of England more, without any danger to herself, and she should also take more interest in sanitary affairs, temperance, and the popular recreations of the people; but she must have thrift as a basis, and the school as its early scene. The extension of opportunities for popular amusements should be in the same ratio as the diminution of opportunities for popular drinking. To deprive the masses of their chief means of animal gratification while they seemed still incapable of any other would be, in his opinion, a perilous experiment in a free country. He advocated the establishment of zoological gardens, gymnasia, and swimming-baths, especially a swimming-bath on the Mersey.

Dr. J. Stopford Taylor (deputy medical officer of health) also read a paper on the same subject. The first obstacle in the improvement of the masses he conceived to be the manner in which the lower classes were housed; and said that unless the habits of the people were changed little or no benefit could be hoped for. That change might, he thought, be brought about by the Church, for could it not be brought home to the people? He did not mean that this should be done by clergymen alone, but by every member of the Church. He suggested that each incumbent should surround himself with a body of energetic workers, who would enlist the sympathies of the people, and explain to them that improper food and drink should be avoided, and that the life of every man was, in a measure, in his own hands.

The Rev. J. Shaw, referring to amusements for the people, expressed the opinion that no attractions were so great as what were called working men's clubs. He considered that those clubs worked exceedingly well, and he was of opinion that if the Diocesan Society undertook the building of mission-rooms in the lower parts of the town, much good might be done.

Mr. L. R. Baily said that as long as people lived in squalid, miserable homes they would naturally be driven to public-houses and other places where they could get light, comfort, and amusement. He, therefore, thought that one of the first things to be done was to improve the dwellings, and to give the people the impression that they were doing it for themselves.

Mr. B. H. Grindley said that what they wanted was a more paternal Church in the poorer districts of Liverpool. By that they would take in hand social science, and would do very great good for the people. He believed that the Church had in the past done a great deal of social science work, but it was evident that she could do a great deal more. There was urgent need of floating and swimming baths for the people, but what should be aimed at for the future were free baths.

A vote of thanks was accorded to the readers of the papers.

The Rev. W. Lefroy moved the following resolution:—"That a great want exists for larger and cheaper facilities for bathing; and that it is respectfully suggested to the Town Council that not only baths might be constructed on the river, but that the use of the pieces of water in the public parks might be granted up to eight o'clock in the morning."

The Rev. T. B. Banner seconded the resolution.

Dr. Taylor remarked that the Corporation were losing very considerably every year by the baths they had established in the town. There were baths in Cornwallis-street, Stoble-street,

and Margaret-street. One was about to be erected in Upper Parliament-street; another was being erected in Kirkdale; and the baths in Paul-street were about to be replaced by better ones. The baths at the Pierhead had cost a great deal of money to keep in repair, and the Corporation were considering whether they should not dispose of the land. The difficulty was to decide where the Salt-water Baths were to be placed when the George's Baths were removed. Some wished that a large bath should be placed in the centre of the town; others desired that one should be placed on the Landing-stage; and others were in favour of one on the Cheshire side. The feeling of the Corporation was in favour of the bath system, and they were exceedingly anxious that the inhabitants should have sea-bathing and fresh-water bathing. He did not, however, think that bathing in the parks would be of very much advantage.

The resolution was withdrawn, in consequence of Dr. Taylor's explanation.

THE DARREN CANAL.

"A DEFINITE step is about to be taken towards the construction of the Darren Canal. It has been estimated that the cost of the work will be about 20,000,000*l.*, that the length of it will be 180 miles, and the time taken to construct it at least five years. Most persons will say that if the work is achieved in twice five years it will have been quickly done. The Government of the United States is now going to enter into negotiations with that of Nicaragua, through whose territory the canal will pass. How long the negotiations will take remains to be seen."

Sir,—In reference to the above excerpt from a local newspaper (the *Western Morning News*), you may perhaps concur with me, as I believe you did in either the latter part of 1848 or beginning of 1849 (from October to June) in reprobating a scheme that seems to me to be the project of little short of insanity. I cannot now remember the number of the *Builder* in which I (as "Capt. Nelson, R.E.") invited public attention to this matter, when stationed at Pembroke between the times above mentioned.

A canal, a cheval of the *Grand Volcanic Main* of the Western World,—“bristling with volcanoes” (as expressed either by Stevens or Humboldt, I forget which),—is a hobby which few would have any fancy to ride, if they did but recollect his “personal character,” as collected from the following:—

1. Caraccas.—Convulsed from 1811 to 1813; especially during the Caraccas earthquake of the 25th of March, 1812.

2. The Chiloe or Concepcion earthquake, on the 20th of February, 1835; felt south, north, west, and east between the Island of Chiloe, Copiapo, Juan Fernandez, and Mendoza respectively. Almost all the towns and villages between 35° and 38° south latitude destroyed; and all the lower members of the “Volcanic Society” near Chiloe vehemently disquieted.

3. The eruption of Coseguina, on the 20th of January, 1835, and synchronous earthquake of New Granada, which affected the whole *Isthmus of Panama*,—hundreds of miles south of it, and many miles northward. “The whole of New Granada was violently convulsed, and the subterranean thunder was heard simultaneously in Popayan, Bogota, Sta. Martha, Caraccas, Haiti, Jamaica, Curacao, and at Lake Nicaragua.”

4. To complete this very modern list of sixty-four years' duration (1811—1875), we may add the recent earthquake in Guatemala, by which, in less than one minute, the city of San José de Cuentas was utterly destroyed on the 18th of May, 1875; “and the majority of the 2,000 or 3,000 survivors prepared to leave a site and a city under whose ruins lay buried from 8,000 to 10,000 dead bodies, which were already infecting the air with their putrid emanations.”

How well the above-mentioned “personal character” was understood by Byron!—

“Where the slumb'ring earthquake
Lies pillow'd on fire;
And the lakes of bitumen
Rise boilingly higher;
Where the roots of the Andes
Strike deep in the earth
As their summits to heaven
Shoot soaringly forth.”

It is quite probable that there are no insurmountable difficulties as regards the Engineer's work in this project. Let it be granted that complete success attends its execution;—one slight quiver or shiver from the giant “pillowed on fire” below, and every lock, gate-post, gate, and piece of masonry will be started; let alone the damage done to the canal itself at different points from time to time.

The liability to expenses, and hindrances to traffic, resulting from repairs, or even ruin, will be best studied by the light of the Volcano, in

the southern bight of Lake Nicaragua, placed there expressly (we will suppose) as a friendly beacon and warning to speculators respecting the projected canal in its very near neighbourhood.

R. J. NELSON,
Major-General (late) Royal Engineers.

WORCESTER DIOCESAN ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.

THE excursions of this society were interrupted last year by the lamented death of Mr. Severn Walker, but the committee having determined to continue the objects and investigations entertained for so many years, Mr. J. Hooper and the Rev. T. W. Wood were induced to become honorary secretaries, and commenced active work by organizing an excursion to examine several churches, and this came off on the 20th ult., when a large party accordingly met at the Shrub Hill Station, and proceeded by train to Pershore, where carriages conveyed them en route to the places put down on the programme.

Besford, which lies in a rural district, was first visited, and its timber-framed church, with its rood-loft, and remarkable tomb and painted triptych in honour of Edmund Harewell, the young heir of his family who died, aged 15, in 1576, was examined with much curiosity. Next, the new church of Birlingham was examined, and the Rev. R. Duke, the rector, explained its characteristics and ornamentation. Thence the party were conveyed to the pleasant village of Eekington, and here the church was inspected under the direction of the Rev. H. J. Vernon, the vicar. Here are some remarkable memorials of the Hanford family, of Woolas Hall. The broad square tower forms a prominent object. Mr. Vernon hospitably entertained the members of the Society to dinner, after which the party drove on to inspect the little church of Wyre Piddle, which, unpretending as it is, contains a Saxon arch and font, and has a bell-cot, believed by Mr. Bloxam to be also Saxon. These Saxon remains are quite unique in Worcestershire. Another church had yet to be visited, and crossing the sedge-fringed brook from which the hamlet of Wyre has its second adjunct, the party were carried rapidly to Fladbury. This was formerly an important place, there being a monastery and market here in Saxon times, and King Ethelred gave the town to the then Bishop of Worcester. The living is still in the Bishop's gift, and one of the best in the diocese. The church is mainly of fifteenth-century work, except the base of the square pinnacled tower. It consists of nave divided from the side aisles by pointed arches, and chancel, in which is an ornate alabaster reredos with figures of angels, and an east window of five lights filled with stained glass. The last renovation of the structure was in 1871, when the nave was restored, the tower opened to the church, the high pews taken away, and open seats substituted. Here, under the tower, then removed from the nave, is a massive altar-tomb, with brasses on it, depicting Sir John Throckmorton and his wife, the date 1445. The tall marble monument of Bishop Lloyd has been divided, his bust remaining on the wall of the north side of the altar, while the long Latin inscription is placed for those who like to read it in the vestry. Mr. Noake was the expounder at this and other churches.

HYDRAULIC FORGING.

At a meeting of the Iron and Steel Institute, at Leeds, on the 21st ult., Major J. O. Butler, of Kirstall Forge, read a paper on “The Hydraulic Forging and Stamping of Malleable Iron on the ‘Système Haswell’ of Vienna.” He said,—The forging and shaping of malleable iron has been practised from the earliest period. Long before the Christian era, it is recorded that there were “cunning workers in iron,” rude in shape at first, no doubt, and with appliances of the simplest character. As time rolled on, however, and civilisation advanced, and men's wants multiplied, refinements in the mode of working produced superior “handicrafters”; and approaching our own times, we have sufficient evidence of this in our armouries, museums, and arsenals, where are found in all parts of the world magnificent specimens of workings in iron, chiefly, however, for warlike purposes. Coming nearer to our own times, and we may say to the commencement of the present century, or even so recently as forty years ago, the manipulation of malleable iron, when in an incandescent

state, into shapes of almost endless variety has been greatly stimulated by the ever-varying requirements of the practical engineer. The introduction of steam into our mercantile marine and into our navy, as well as the locomotive engine, which was the natural offspring of our railways, has called forth the inventive genius of our workers in iron in a most remarkable manner, and perhaps no machine has brought out the talents of our working smiths more than the locomotive engine. The writer well remembers the time when smith-work even of a comparatively simple kind was difficult to be executed, and it was often the case that the designer and the draughtsman had first to chalk out the piece of work he wished to be done in a particular fashion on the foreplate of the smith's hearth, and ask his workman, “Can it be done like this?” When he would often reply, “No, maister, it cannot be done.” We must not, however, omit here to mention that the rapid strides made in the operations to which allusion has been made are due almost entirely to the steam-hammer, that wonderful production of the brain of a Nasmyth, which, about thirty-five years ago, revolutionised the operations in our forges and smiths' shops. In the present day masses of iron of immense magnitude are being manipulated with ease that once was thought impossible: witness our “Woolwich Infants,” and other kindred pieces, such as armour-plates and the like, which have first to go under the steam-hammer. The pressing of iron into a mould, or matrix, to give shape to various articles by the aid of the screw press, has also been practised for many years; the steam hammer has likewise been brought into requisition for the same purpose, but to a limited extent only. Reciprocating blows from a steam hammer, it is found, do not produce or accomplish satisfactorily the kind of pressure necessary for forcing the atoms or molecules of iron, in an incandescent state, into all the interstices of a mould, where intricacy and accuracy are desired. This, however, can be done effectually by the inexorable thrust of a hydraulic or hydrostatic “squeeze.” And this leads us to the subject of the paper now before you. We believe that Mr. Haswell, of Vienna, was the first to bring into practical and useful operation the “squeezing” of malleable iron at a welding heat into shapes and uses, as they are technically called, previously to their being manipulated by the smith and fitter. Some years before Mr. Haswell's patent of the machine or tool now under consideration was designed, hydraulic power had been made use of for forging or pressing malleable iron, both with and without the aid of an accumulator; but it is to Mr. Haswell that we are indebted for the improvements which make the hydraulic press a tool of general use. The drawings or photographs against the wall illustrate the machine or tool that he has produced for that purpose. It will be perceived that it is simply the adaptation of the hydraulic press, on the principle of Bramah, with an arrangement peculiar to Haswell, whereby a “squeeze” can be given, either reciprocating or in one continuous thrust, until the piece operated upon acquires the desired shape. The pieces on the table are samples of what are produced. No. 1 is a sector of a 12-spoked wrought-iron locomotive wheel, showing three spokes with their portion of rim and boss pressed out of the solid slab. No. 2, locomotive cross head ditto. No. 3, ditto (double) ditto. No. 4, outside crank with its pin, ditto. No. 5, piston rod socket, ditto. No. 6, locomotive axle-box, ditto. Then followed a description of the machine.

Sir Joseph Whitworth, bart., who was next called upon, said the great novelty in his application of hydraulic power was in giving intense pressure to the fluid metal. On applying this great pressure to a column of metal its length was diminished one-eighth in less than five minutes. This would indicate to them the amount of work done, and the effect with which the air cells were expelled. It had been a somewhat dangerous and difficult process to carry out, but it was now quite successful, and his firm were preparing to carry it out on a much larger scale. It might be of interest to mention that they had lately completed for her Majesty's ship *Inflexible* two twin screw-shafts, 283 ft. in length, weighing 63 tons. The weight of iron would have been 97 tons, so that by using this compressed steel they saved 34 on the driving round of two shafts during the whole life of the engine. These shafts were now lying at the yard of Messrs. John Elder & Co., Glasgow. The strength of the shafts was 40 tons to the square inch, and their ductility or power of extension was

30 per cent. of their length. The shafts were 17 in. in diameter, and they had a 9-in. hole through them cast hollow. It was found desirable to get the pressure applied as soon as possible—when, in fact, the metal was still in a white heat. The firm had not applied the process for forging iron, what they had done having been done entirely with fluid-compressed steel. The value of the hydraulic pressure in forging, so far as his experience went, was in proportion to the size of the mass. The larger it was, the better the hydraulic pressure. In reply to a question, Sir Joseph added that the value of the compression was in proportion to the ductility of the metal. If they wanted to produce a steel that would have 30 per cent. of ductility, they could not produce it at all without pressure; otherwise it would be full of air cells. The fact that gas was squeezed out of the cells was proved by the fact that there was a considerable flame burning from them during the process, owing to the escape of the gas.

Mr. Snelus said he had over and over again made steel which bore exactly the same tensile strain, and gave the same ductility, without pressure. This was accomplished by the use of ferro-manganese.

Sir J. Whitworth.—If you can do it without the use of compression, so much the better.

Major Butler, replying to the remarks of some of the previous speakers, said there was no fear of the hydraulic system, excellent as it was, superseding the steam-hammer. In the case, however, of heavy work, it dispensed with the need of such enormous foundations as an 80-ton hammer, for instance, would require. He had seen armour-plates 14 in. thick and 10 ft. wide quite easily bent by Haswell's process.

After some discussion,

The President (Mr. W. Menelaus) remarked that he thought the Institute would agree with him that Mr. Butler had not proved his assertion that ten years ago large steel cylinders could not be cast in England. But even if the assertion had been correct, they could now produce anything that could be done elsewhere. Mr. Butler, however, deserved a hearty vote of thanks for his paper.

A "CHRISTIAN WORKERS' MISSION HALL" AT CAMBERWELL.

THE ceremony of laying the memorial stone of a new building bearing the above title was performed on Tuesday afternoon by Mr. Robert Alexander Gray, J.P. The building, which may be described as one of a rather exceptional character, is situated in George-street, near Camberwell-green, and is intended for the services of "Ned Wright," who has for several years past been distinguished for preaching to thieves, he himself having once been a convict. The site for the building has been granted by Edmonds's Trustees, who are the freeholders, and who have granted a lease for the term of sixty years, at a ground-rent of 60*l.* a year to Messrs. Ned Wright, Eneas Dawson, and M. H. Hodder, the lessees undertaking that within twelve months a brick building shall be erected of the value of 1,000*l.* The site occupies an area of about 14,000 superficial feet. The structure is to be 140 ft. in length and 62 ft. in width, and, when completed, will hold 1,500 persons. It will be a plain brick building, covered in by a roof of 80 ft. span, with iron principals and girders. The walls internally will be plastered, and the only fittings will consist of a platform at one end, and plain benches and chairs in the body for the congregation. The design has been gratuitously furnished by a friendly architect, who will superintend the erection of the building, whilst Ned Wright himself (who is connected with the building trade), assisted by several artisans, also friendly to the undertaking, will carry out the work. The plans have been submitted to the Metropolitan Board of Works, and approved by them.

Metropolitan Improvements.—The officials of the Metropolitan Board of Works are occupied inspecting and preparing plans for the proposed improvements and means of communication between Tottenham-court-road and Charing-cross, and also the widening of Gray's-inn-road from Holborn to Liquorpond-street, and the widening of Little Gray's-inn-lane, from Gray's-inn-road to Mount Pleasant. The plans and estimates will be submitted to a meeting of a full Board, who will decide whether they shall promote a Bill in Parliament next session.

WORKMEN'S MODEL DWELLINGS.

WE recently commented on the doings of the Model Lodging Houses Association in reference to this question, and our parochial contemporary, the *Metropolitan*, has the following:—

"DWELLINGS FOR THE WORKING CLASSES.—A correspondent suggests, with reference to the notice in our issue of the 9th inst., of a new undertaking 'for the benefit of the working classes,' that the Metropolitan Board of Works and local authorities generally will do well, in the interests of the ratepayers and the poor, if in the exercise of the important powers vested in them by recent legislation, they make some inquiries into the *bona fides* of some of the companies, which, taking advantage of public sympathy, have sprung into existence concurrently with the Artisans' Dwellings Act. A perusal of the articles of association of these companies will show that in one or two instances—happily in one or two only—the undertakings have been promoted more for the benefit of a few interested individuals, than either for the benefit of the working classes, for effecting sanitary and other improvements, or for assistance to local authorities."

PROPOSED NEW TOWN-HALL, GREAT YARMOUTH.

At the last meeting of the Yarmouth town council, the committee appointed to consider the question of the erection of a new town-hall presented the following report, which was moved by the Mayor, and seconded by Mr. F. Palmer:—

"The committee viewed the site of the Tolhouse-hall and gaol, and found that from its position it was not suitable for the erection of a Sessions Court-house and public offices; and the committee subsequently considered various other sites suggested, but found that not one of them was adapted to the proposed new buildings. The committee, after considerable discussion, found that the only suitable position for a sessions court and corporate offices was on the site of the present town-hall; and on viewing the building, which it was found would, from its age, have to undergo heavy repairs in the course of a few years, and also considering the unsuitableness of the present magistrates' court and justices' retiring-room, the committee resolved to recommend the council to pull down the present town-hall buildings, and to erect upon the site (extended as shown in the plan submitted to the council) a public assembly-room, sufficiently large to meet the present and future requirements of the borough, a sessions court, council-chamber, magistrates' court, and the necessary corporate offices. The committee further recommend that a police-station, cells, and residence for the superintendent be erected upon the vacant site belonging to the Corporation at the north end of Middlegate-street. The committee have considered the cost of town-halls recently erected by other towns, and are of opinion that the buildings proposed to be erected upon the site of the present town-hall can be built for a sum of from 17,000*l.* to 20,000*l.* And they recommend that the Council authorise them to advertise for plans, with premiums of 100*l.*, 50*l.*, and 20*l.*, for the three best designs, the plans sent in to be submitted to a future meeting of the Council. The style of the building to be 'Classic,' and the principal fronts to be to the north and west. The site of the town-hall contains 8,960 superficial feet, and the site extended on the north, east, and south sides, as shown on the plan submitted, will contain 13,000 superficial feet, which the committee consider is amply large enough for the erection of a new town-hall, adapted to the increasing size of the town. The cost of the building could be met by a loan, the repayment of which would be extended over a term of years.

A letter was read from Mr. Augustus Frere, of London, architect, offering to furnish the Corporation with plans for a town-hall, on the understanding that he would receive no remuneration if they were not accepted, but binding the Corporation not to be in treaty with any architect while they were considering his plans. The Corporation, however, said they could not accept the offer of Mr. Frere, who must put in his plans for competition in the same way as others."

The report was adopted with but two dissentients.

LIVERPOOL AND SOCIAL SCIENCE.

WITH reference to the approaching Congress, the *Liverpool Weekly Albion* is publishing some essays headed "How Liverpool was Made," "The Spirit of Liverpool Commerce," "The Blots of Liverpool Life," and so on. We take a passage from the last named. After describing the hosts of Irish to be found in Liverpool, untaught in any handicraft, and devoid of the faintest glimpse of education; and the even more dangerous element, "the Americanised Irish rowdy, who on the other side of the Atlantic has lost even that one redeeming feature of pure Hibernian brutality—its utter stupidity; and who brings back with him a respectable overcoat, a revolver, and a faculty for deliberate planning of outrage which could hardly be overdrawn"; the writer thus concludes:—

"This is the dark side of Liverpool life, and so dark is it that it might well strike any but the most hopeful mind with dread as to the ultimate results to which such a state of things

must lead. And here, while casting about for means to counteract these dangerous growths, the question must naturally arise,—what amount of power or will to fight against them is to be found with those who wield the municipal authority? The power need not be much discussed, because it is much to be feared that the will is deficient. Here it is that the weak and dangerous side of the character of Liverpool society makes itself felt. We do not, in dealing with individuals, expect to find the jovial, hearty, dinner-giving man the best person with whom to discuss grave problems of morality; and equally delusive would it be to expect from the Corporation, which finds its best satisfaction in brilliant public occasions, that amount of careful consideration of their duties towards their town which might well be displayed by a less open-handed but more conscientious body. It might not untruly be said that, if recklessness is the distinguishing feature of the lower life of Liverpool, the distinguishing feature of its higher life, as evidenced through its municipal proceedings, is a want of due sense of responsibility. It is not that the Corporation does not treat the town liberally; on the contrary, it is liberal almost to a fault, not only in its corporate capacity, but also in respect to the private action of its individual members. The spacious parks that have been laid out; the public buildings that have been erected and presented to the town at the sole cost of single individuals—these are things which amply bear witness to the fact that the influence of the Council Chamber does not tend to niggardliness; and though it may be even more than suspected that the expenditure of public money looks for a return in the shape of support given to the political party that spends it, or that private munificence has an eye to a possible baronetcy, the advantage to the town is none the less on that account. Want of liberality, then, is the last complaint which the inhabitants of Liverpool could bring against their governing body. It is rather when note is taken of the high death-rate existing in a place so naturally healthy by situation, and so capable of a thorough system of drainage; and, further, of the manner in which jerry-building speculators (Welsh for the most part, and possessing a large and unctuous interest in brick chapels) have been allowed to take possession of whole districts,—it is when such facts as these, and others no less significant, are noticed, that a glimpse is obtained of what ought to have been done while by no means necessarily leaving other things undone; nor can it be said that the manner of the recent appointment of a deputy medical officer (against the appointment itself we say not a word at the present moment) was calculated to inspire confidence in this most important direction."

THE ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD.

THE fifth annual report of the Local Government Board has just been issued. The statements and observations of the Board relate, first, to the Administration of the Laws for the Relief of the Poor; and, secondly, to the Administration of the Laws affecting Local Government and the Public Health. Under the first head we find that the total expenditure for the relief of the poor during the parochial year 1874-5 was 7,488,481*l.*, against 7,661,975*l.* in the preceding year. The absolute decrease was therefore 176,476*l.*, or 2.3 per cent. In the extra Metropolitan district of Middlesex the decrease was 2.8 per cent, and in the Metropolis 2.7 per cent. The total number of paupers of all classes in receipt of relief on the 1st of January, 1875, was 817,822*l.*, a decrease of 1.7 per cent. on 1874, and in July, 1875, the decrease was as much as 4.8 per cent. as compared with the corresponding period of the year before. The population at the last Census was 22,706,031, so that the ratio per cent. of paupers relieved in the population was 3.5 in 1874, and 3.4 in 1875. The report then deals with infirmary accommodation, the school districts, the asylums and dispensaries, vagrancy, lunatics, emigration, and a variety of other matters, furnishing statistics of great interest and importance to all interested in poor-law matters. We find from one table that there were 54,571 lunatics chargeable to the poor; rates in 1875, an increase of 1,690 over the previous year, so that the advance in numbers, remarked upon in previous reports, still continues. The emigration at the cost of the poor-rate in 1875 was on a very small scale, 108

persons only having been sent abroad, at a cost of 378*l*.

The sum of 562,556*l*. was expended during the twelve months in building expenditure on workhouses, the Metropolitan District Asylums, and District Schools.

Under the second head the report furnishes copious information respecting the different sanitary measures that have been in operation, and shows what has been done throughout the country for the protection of the public health. There are now 807 medical officers of health, and 808 inspectors of nuisances throughout the country, towards whose salaries the Government contributed, up to September last, the sum of 59,119*l*. The amounts sanctioned during the last two years as loans to sanitary authorities in respect of urban districts were considerably in excess of the total amounts sanctioned in respect of the same districts during the ten years which followed the passing of the Public Health Act, 1848; and the continuous increase of expenditure on the part of sanitary authorities is regarded as affording a most convincing proof of the amount of interest taken throughout the country in sanitary matters. With respect to local taxation, the total of 1873-4 is given as 37,418,810*l*., and the total expenditure as 36,371,099*l*. The non-remunerative local taxation in the same period was 12,580,607*l*., or 116,243*l*. in excess of the amount raised during the preceding year.

MONUMENTAL.

The Late Lord Marjoribanks.—A Gothic mural tablet to the memory of the late Lord Marjoribanks, of Ladykirk, Berwickshire, N.B., has just been executed by Mr. Carrie, sculptor, Oxford-street. It is 7 ft. high, by 4 ft. wide. An arch, springing from capitals carved with ivy, supported by triple columns on clustered bases, the whole resting upon a moulded plinth with foliated brackets, forms the memorial.

Dunfermline.—The monuments to the memory of Thomas Gillespie and Ralph Erskine have now been erected at Dunfermline. The Gillespie monument consists of a tablet of polished Sicilian marble, which has been let in behind the columns of the arcade in the north aisle of the nave of the Abbey Church. It measures 8 ft. by 2 ft. 3 in. The monument placed over the grave of Erskine is in the form of a sarcophagus, and measures 6 ft. 6 in. in height, and 8 ft. by 3 ft. 6 in. at the base. The work is purely Classic. The pedestal rises from a moulded basement, and is enriched with carved rustic coirs, from which are projected inscription panels. The sarcophagus rests upon a square block, consisting of moulded base, cornice, and die—the cornice and base having carved mouldings. On the four sides of the die moulded panels have been introduced, and each of these bears bas reliefs, indicating the character and work of Erskine, and of the late Rev. John Smith, Rev. James Husband, D.D., and Rev. Robert Brown, who were leading ministers of the Secession Church in Dunfermline. Both monuments have been executed by Messrs. Stewart, M'Glashan, & Son, sculptors, Edinburgh.

Colonsay.—A short time ago Lady Emma M'Mill inaugurated a monument on the Island of Colonsay, erected by subscription to the memory of the late Lord Colonsay, former proprietor of the island, and of the adjacent island of Oronsay. The design was prepared by Mr. Thomson, architect, Edinburgh, and the erection of the work was entrusted to Mr. W. Vass, of the Sound of Iona Granite Quarries, Mull. The monument is an obelisk of red Mull granite, finely dressed, resting on a moulded quadrangular pedestal of the same material. It is fully 30 ft. high.

Newcastle-upon-Tyne.—Mr. Joseph Mayer, of Liverpool, recently commissioned Signor Fontana, a London sculptor, to execute a memorial tablet to the memory of his parents, which is to be erected in a church at Newcastle-upon-Tyne. The tablet has just been finished. The size of the memorial is 4 ft. 6 in. by 8 ft. 6 in. It consists of a simple frame in the Greek style. The portraits of Mr. Joseph Mayer and his mother, each three-quarter face, are in bas relief in the upper portion of the tablet, the medallion being set in drapery to correspond with the lower portion of the work. Below is a pedestal, having on each side a female figure. These are Integrity and History. One holds a wreath of lilies—denoting purity—below the medallion; and the

other has a stylus in her hand, as though about to record the deeds of the departed.

Winchester.—A monument has just been placed near Gardiner's Chantry, Winchester Cathedral, in memory of the late Bishop Sumner. The work is from the studio of Mr. Weekes, R.A. The form of the memorial is that known as an "altar tomb." Upon a Gothic base of Caen stone rests the effigy of the prelate. The effigy is in Carrara marble, life sized, the Bishop being represented sleeping in his episcopal robes, which are partially covered with the mantle of the Order of the Garter, of which *ex-officio* he was the prelate.

Dumfries.—A tablet has just been erected in St. Andrew's Roman Catholic Church, Dumfries, by Lord Herries, in memory of his late brother, the Hon. Marmaduke Constable Maxwell, of Terregles. The tablet is 9 ft. 6 in. in length by 5 ft. at its greatest breadth. It is wrought out of Caen stone, and has on either side pillars of polished red granite, and is supported by two modelled figures representing Piety and Benevolence. The pediment above is florid with carving in high relief. The monument was designed and executed by Mr. Wm. Flint, Dumfries.

SCHOOL BOARD SCHOOLS.

Michelmersh.—The foundation stone of a new Board School, at Michelmersh, was laid on the 13th ult. The work undertaken by the Board comprises three schools, situate respectively at Braishfield, Michelmersh, and Awbridge, each containing accommodation for eighty scholars, with large playgrounds for both sexes, and the central school at Michelmersh having in addition thereto a teacher's residence attached to the school. The contracts for the two first-named have been taken by Mr. John Crook, and for the latter by Mr. J. W. Rowland; the architect being Mr. W. H. Mitchell, of Southampton.

Bermondsey.—On the 25th ult., Sir Charles Reed, chairman of the School Board for London, opened new schools in the Manor-road, Bermondsey. The buildings, which will accommodate upwards of 800 children, are close to the South Bermondsey Station of the South London Railway, and are approached from the station by Rotherhithe New-road and Manor-road. They consist of one large block of buildings, three stories in height, the front, towards Manor-road, being enriched with carving in red brick by M'Culloch, the style of architecture being, as usual, "Queen Anne." The infants are placed on the ground-floor, having a large schoolroom and babies' room; the girls on the first and the boys on the second floor, each having a double schoolroom and two class-rooms, with the usual means of access; cloak-room, and lavatories. There are also rooms for the care-taker and the teachers, together with ample covered and uncovered playgrounds. The accommodation will suffice for 274 boys, 270 girls, and 293 infants,—337 in all; and the total cost per head is 12*l*. 11*s*. 9*d*., the purchase of the site amounting to 1,676*l*. 16*s*. 10*d*., and the building to 8,862*l*. 6*s*. 4*d*., making a total of 10,539*l*. 3*s*. 2*d*. The buildings were erected from the designs of the Board's architect, Mr. E. R. Robson, the contractors being Messrs. Hill, Higgs, & Hill, and the clerk of the works, Mr. Ashford.

Rotherhithe.—New schools in the Dartmouth-road, Rotherhithe, built by the School Board for London, were opened on the 26th ult. by Sir Charles Reed. The schools are situated near to, and overlook, the Southwark Park, and consist of one block of building three stories in height. On the ground-floor are a spacious school and a babies' room for the infants; on the first-floor a double school-room, and two class-rooms for the girls; and on the second-floor like accommodation for the boys, with separate entrances, cloak-rooms, lavatories, &c. There are also rooms for the caretaker and teachers, together with spacious playgrounds. The school will contain 274 boys, 273 girls, and 294 infants; total, 841; the total cost per head being 9*l*. 17*s*. 3*d*. The cost of the building is 6,951*l*. 15*s*. 2*d*., and that of the site, 1,298*l*. 18*s*. 10*d*., making a total of 8,249*l*. 14*s*. The design is that of the Board architect, Mr. E. R. Robson, the builder being Mr. Thompson, and the clerk of works Mr. Ashford.

Brighton.—The alterations and extensions of the Board schools in Middle-street, Brighton, which were commenced a year ago, are fast approaching completion. A plot of ground on the south side of the schools, facing Boyce's-

street, has been secured, and made the site of an infants' school. It was at the same time arranged that a playground for girls and infants should be attached to the new building, and that from Boyce's-street a corridor and staircase should lead to the existing girls' department in the Middle-street block. By these means extra and better accommodation will be provided for girls and infants, and the one entrance and the common playground got rid of. The new infants' school is erected in the Queen Anne style—the style of the building in Middle-street. The front is of red Suffolk brick, and the pediments are surmounted by a finial of Donnington stone. Facing Boyce's-street are five windows, and an oriel under the centre pediment, with brickwork scrolls on each side. On the left is a wide doorway, with side-lights, surmounted by a pediment, while the tympanum is filled with scroll brickwork, with "1876" carved in the centre. The extra accommodation provided consists of two rooms—one, 42 ft. by 27 ft.; and the other, a class-room, 27 ft. by 18 ft. The general fittings of the new building are similar to those of the other Board schools. Mr. T. Simpson is the architect; Mr. G. Lockyer, the builder; Mr. T. Ransome, the clerk of the works; and Mr. G. Avis, the foreman.

Alfrick.—The United School Board of Suckley, Alfrick, and Lulley opened their new school at Clay-green, Alfrick, a few days ago. The building has been erected by Mr. Garbutt, of Malvern Link, from designs of Mr. Ernest A. Day, of Worcester. A residence for the master and mistress adjoins the schoolrooms.

SUBSIDENCE OF BUILDINGS NEAR GLASGOW.

CONSIDERABLE alarm was experienced on the morning of the 25th ult. by the inhabitants of a four-story tenement, at the corner of Douglas-street and Castlebank-street, Partick, near Glasgow, owing to a sudden shock and vibration similar to that preceding the fall of a building. The tenement in question is comparatively a new one, and was purchased by Mr. Wallace, of Cambuslang, for about 4,000*l*. It is occupied by the families of workmen, and is divided into rooms and kitchens, and single apartments. The bed of the river Kelvin is about 200 yards to the east of the building, Messrs. Wilson's bleach-works, a row of two-story houses, and a street intervening. The bleachworks, on the margin of the stream, escaped uninjured, but the old two-story houses are cracked outside and inside, and the plaster of the exteriors and roofs removed by the vibration. In the new tenement, however, is a rent reaching from the first to the top story, and extending in width from 1 in. to 8 in. Within the several houses and on the connecting stairs there is an ugly webwork of fissures, and a further subsidence was threatened two days after the first. The authorities warned the occupants to quit, but of the forty families, consisting of a total of 120 persons, only one or two obeyed the warning, though many of them, apparently indifferent to their personal safety, removed their furniture. Steps are also being taken to have the walls and foundations of the property rendered secure. In order to account for the subsidence, it is stated that the houses were built on ground which, some seventy or eighty years ago, had been undermined for coal, that the pit had become overcharged with water from the river, thus saturating the foundations of the houses. Another theory is that the tenements had been built upon a sandy soil, and subsided through their own weight. It is impossible, however, to account for the misfortune with anything like accuracy. It is not thought necessary at present to raze the buildings, provided they can be rendered more secure.

BONA-FIDE.

MR. EDITOR,—The following appears in the arrival-book at Lynton, near Ilfracombe. I have just now stumbled over it. As a piece of unpaid-for advertising it will doubtless please one who often uses your columns.

A NEW-MADE BENEDICT.

"From Lynton's Castle Inn to Lynmouth low,
The visitor, with facile steps, may go;
But in returning to the upper air
Some rather stiffish exercise is there.
'Tis true that contemplation lifts the mind,
But leaves our unpoetic parts behind.
Would it not, therefore, be a useful gift,
If 'Bunnett' would provide us with a lift,
That while our minds are charm'd with lofty scenery,
Our legs might have the benefit of machinery?"

A SURVEYOR'S ACTION.

At the Westminster County Court on the 30th ultimo, the case of Foster v. Hayter was heard before Mr. Judge Bayley, in which the plaintiff, a surveyor, of Great Marlborough-street, sued the defendant, a contractor, of Portsmouth, to recover the sum of 5*l.* 15*s.* 6*d.* under the following circumstances. Mr. Owen Low appeared as solicitor for the plaintiff; and Mr. H. T. Roberts for the defendant.

From Mr. Low's opening it appeared that his client was employed by the defendant to make a survey of some extras and variations which the defendant had in his account, as contractor for the erection of the new Lunatic Asylum at Portsea, charged against the Town Council of Portsmouth. The plaintiff's claim was originally for eleven guineas, but it was ultimately agreed that one-half of this sum should be paid by Mr. Rake, the architect of the building, residing at Portsmouth, and the other half by the defendant; but as the defendant refused to pay his portion of the claim the present proceedings were instituted.

At this stage of the case Mr. Roberts said he should (in *limine*) object to the jurisdiction of the Court, as the transaction took place in Portsmouth and not in London.

Mr. Low considered that the objection could not stand, as it was true that although the information had been obtained in Portsmouth, the real work was actually executed at the plaintiff's chambers in London; upon which the learned Judge over-ruled the objection, and the case proceeded.

Mr. Rake being called, said he was an architect at Portsmouth, and was employed on the erection of the new Lunatic Asylum at Portsea, and that the defendant had the contract, but, owing to some extras and variations, the Town Council would not pass the defendant's accounts, when it was suggested that the plaintiff should go through them and report upon them; and this suggestion being adopted, the plaintiff was employed, and witness agreed to pay half of his charges. In answer to the learned judge, the witness said that the charges were fair and reasonable, and in accordance with professional usage.

This was the plaintiff's case; when, the defendant being called, said he never authorised the plaintiff being employed, as there was no necessity for doing so, as the architect's clerk could have done so without incurring further expense.

Mr. Rake here said his clerk was a very young man, and as the Town Council would not have been satisfied, it was agreed to employ the plaintiff.

The defendant continued, and said the plaintiff's report was incorrect, and had been the means of the Town Council of Portsmouth not paying him 700*l.* remaining due to him.

A surveyor from Portsmouth was called, who considered there were some trifling inaccuracies in the plaintiff's report.

The learned judge considered it was evident that the plaintiff had been employed by the defendant, and therefore he should rule in favour of the plaintiff, with costs of solicitor and travelling expenses of Mr. Rake from Portsmouth.

THE HIPPODROME AT BRIGHTON.

For some years Brighton has needed an edifice dedicated to equine entertainments, and though the late Mr. Batty constructed a permanent building at the east end of this thriving borough, and a similar structure was made for Mr. James Newsome, these places, from various causes fell into disuse, and improvements have swept them away. The first circus recorded in the annals of the "Queen of Watering-places" was that on the Grand Parade, constructed by Messrs. Kendall & Co. in 1808, and opened in the August of that year by Mr. Saunders, the "father of the ring"; the fabric was 100 ft. in depth, and 37 yards wide: through paucity of support it was closed in 1812, and, excepting Hengler's Arena in a portion of the Pavilion stables, and the occasional visits of travelling troupes during the tenting "season," the good folks of Brighton have been unsupplied with feats of horsemanship and regular athletic displays. Mr. Fred. Guinett has, however, made several abortive attempts to secure a site suitable for the purpose of building a hippodrome, and it was not till the month of June, 1876, that he succeeded in procuring the spot on which, over a quarter of a century since, stood the Maze, in the south-east part of the late James Ireland's famous pleasure-gardens, in the rear of St. Martin's Memorial Church, on the Lewes-road. The main entrances of the circus are in Park-crescent-place. The building is formed of brickwork, with a roof of wood and iron; it is 50 ft. from the base to the vane; 80 ft. wide, and 120 ft. in length; the ride has a circuit of 150 ft., and the promenade exceeds 200 ft. The boxes and stalls will accommodate 300 visitors, the pit 1,350, and the like number can also be disposed of in the gallery.

The interior is after the style of the Grand Cirques in Paris and Madrid, and lighted by one thousand jets of gas. At the back there are extensive stabling for the stud, and dressing-rooms with every convenience for the use of the performers. Bright crimson and gold predominate in the decorations.

The cost of the building is 4,000*l.*, and the sum paid for the ground, 1,000*l.* The contractors, Messrs. W. A. & J. Stenning, of Lewes-road,

have nearly finished their task, though the claims of their workmen threatened at one time to hinder the construction going on.

The opening will take place on All Hallows' Eve.

LOWERING THE DEATH RATE.

THE King of Belgium has announced to the President of the Health Congress his offer of 5,000*l.* as a prize to that city, local authority, or private association which shall by improvement in the dwellings of the working classes effect the greatest reduction of the death-rate at the lowest cost. This prize is to be awarded at the next International Hygienic Congress.

SURVEYORSHIP ITEMS.

MR. ROBERT H. INCH, of Croydon, has been appointed surveyor to the Lowestoft Improvement Commissioners and Urban Sanitary Authority, *vice* Marks, appointed clerk, surveyor, and engineer to the Llandudno Improvement Commissioners and Urban Sanitary Authority.

Whitechapel District Board of Works.—At a meeting of the Whitechapel District Board of Works on the 2nd inst., the salary of the surveyor (Mr. W. S. Iron) was increased from 350*l.* to 400*l.* per annum.

STONE-CUTTING MACHINERY.

SOCIETY OF ENGINEERS.

THE first meeting of the members for the session was held on Monday evening, in the Society's Hall, 6, Westminster-chambers. Mr. V. Pendred, president, in the chair. A paper on "Stone-cutting Machinery," by Mr. Henry Conradi, was read. The author first noticed the ordinary stone-sawing machines as worked by hand. He then described the improved machinery for cutting and dressing stone as in use at the new Law Courts, by Messrs. Bull & Sons, the contractors. It consists of a timber stand, carrying a cast-iron saw-frame suspended by the corners to the upper part of the frame. The saw-frame is raised or lowered by means of winches and chains. The author also described some saw-frames for stone, with both horizontal and vertical revolving disc-cutters, by which the stone is cut. The author then proceeded, by the aid of diagrams, to describe some stone-sawing machines designed by himself, and which have been made and used in France. In this machine the author reversed the principle adopted in ordinary stone-sawing frames, making the fixed stand a movable one, carrying the saw-frame with it in its forward and backward motion, the frame receiving its vertical motion from a suspension arrangement. This sawing-frame is usually driven by means of a semi-portable engine of special construction, which was described by the author.

PNEUMATIC DESPATCH COMPANY.

SIR.—Observing in the *Builder* a notice of the sale of the station of the Pneumatic Despatch Company at St. Martin's-le-Grand, in which it is stated that "the trucks containing the parcels continually stuck in the tubes," permit me to say that the reason why the operations of the Pneumatic Despatch Company were discontinued had nothing whatever to do with the mechanical working of the pneumatic system, which was in every respect satisfactory.

T. W. RAMMELL,

Engineer to the Pneumatic System.

* * We shall perhaps hear what the Post-office officials have to say on the subject.

CHURCH WARMING.

SIR.—In reply to your correspondent, the English in Russia find no difficulty in warming their chapels. There no cough nor sneeze disturbs the quiet of the service, and you might hear a pin fall! At St. Petersburg, I believe, they use the Gurney stove. The difficulties here in England arise from the passive resistance of prejudice and indifference. The question is quite settled elsewhere, if not to the satisfaction of the scientific, to the feeling of comfort, at least, of the congregations. L. W. B.

"PENMON PRIORY."

SIR.—If your correspondent, "G. H.," will turn to the "Archæological Journal," No. 2, June, 1844, p. 118, he will find a very interesting paper, entitled "Remarks on some of the Churches of Anglesey," which will give him all the information he requires.

JOHN L. CLEMENCE.

SUPPLY OF WATER.

* SIR.—Will one of your readers kindly inform me what kind of pipe would be best to use as a main for the supply of pure water for a town of about 2,500 inhabitants; length of main about half a mile, with a fall of 230 ft. from the reservoir. Three stopcocks would be required in the length.

PETO.

MASTERS AND MEN.

North Warwickshire.—The strike in North Warwickshire, between the joiners and carpenters and their masters has now, after a protracted struggle, been settled. The men struck for an increase of from 7*d.* to 8*d.* per hour, but have accepted 7*d.*

Glasgow.—Though the joiners' strike in Glasgow is virtually at an end, a considerable number of the employers have, it is stated, refused to sign the by-laws. The resolution passed by the society men as to refusing to work along with "nobs" is being rigidly adhered to, and work is so far behind that several employers have no alternative but to ask the non-society men either to join the union or leave off work. Since the commencement of the strike a considerable number of men have left the town, and there are now fewer joiners in Glasgow than is usually the case. A pretty large contingent emigrated to New Zealand, and others are in London. The expense of the strike to the society was over 4,000*l.*—the largest sum ever disbursed by them for a like object—and of that amount only about 65*l.* was received from the provinces. Towards the end of 1837 and the beginning of 1838 (says the *Scotsman*) the Glasgow joiners came out on strike with the object of raising their wages from 18*s.* to 1*l.* per week, and the records of this dispute bear curious testimony as to the changes the last forty years have wrought. The struggle lasted till about the month of March, and, according to the minutes relating to the strike, the operatives had to submit to the employers' terms, "because a thaw set in, and the ice breaking upon the canal a body of men came from Edinburgh to work for 18*s.* a week." All through, these minutes bear evidence of the heart-felt wish of the Glasgow joiners that the frost would continue, so as to render the canal impassable.

CHURCH-BUILDING NEWS.

Marlow.—On the 14th ult. the parish church of Marlow, Bucks, was re-opened, after the completion of the new chancel, of which the foundation-stone was laid a year ago. The work has been carried out under the direction of Mr. John O. Scott, architect, by Mr. Thomas Corby, builder, of Marlow, whose contract amounted to 1,921*l.* The materials of the chancel are rubble stone walling, faced with flints and Bath-stone dressing. It is 24 ft. in length inside, and is lighted with three-light windows on each side and a fine five-light window at the east end. The east window has been filled with stained glass, in memory of the late Bishop Milman, of Calcutta, formerly vicar of the parish.

Soham.—It has been determined to restore the parish church of Soham, Cambridgeshire, from plans prepared by Mr. J. P. St. Aubyn, architect.

Dinsdale.—The parish church of Dinsdale was re-opened on the 19th ult., after restoration. The church dates from the year 1196, and is dedicated to St. John, and the adjoining, or Surtees Chapel, to St. Mary. In the restoration all the old features have been retained. The east window of the chancel, which had been recently placed there, has been taken out and replaced by a window of the Early Decorated style. Two new windows of the fourteenth-century period have been added, corresponding to the one previously existing. The west window, built in 1841, has been converted into an Early Decorated one, from the Perpendicular style. The other windows are also Early English and Early Decorated. An organ-chamber and vestry are additions to the edifice, as is also a tower, in the Early Decorated style. The seats are all open benches. There are already four memorial windows of stained glass. That in the chapel is from the Rev. Scott F. Surtees, to the memory of his parents, and is by Messrs. O'Connor & Co. Two windows in the chancel are from the Rev. J. W. Smith, in memory of two daughters; and the third is by Dr. Eastwood, in remembrance of two young children. These are all by Messrs. Clayton & Bell. The building was until lately surmounted by a low-pitched roof with flat ceiling; these have been removed, and the pitch of the new roof made higher, with open woodwork of pitch pine. The walls are faced with red sandstone from the estate, relieved by Osmotherley white stone.

Bridlington.—On the 29th ult. a meeting of the committee for the restoration of Bridlington Priory Church was held at the Town Hall, at which Sir Gilbert Scott, the architect, presented

a satisfactory report of the work already done by the contractor (Mr. Thompson, of Peterborough). Sir Gilbert said he had examined the north porch, and he was glad to learn that the committee contemplated including it in the restoration scheme.

Hartfordbridge.—On the 6th ult. the wooden church which has for some time been in course of erection at Hartfordbridge, in the parish of Elvetham, near Odiham, was opened by the Bishop of Winchester. Mr. George Birch, of Chancery-lane, London, is the architect.

Gloucester.—During the last few weeks St. Luke's Church, Gloucester, has been in the hands of the decorators. The chancel has been decorated in the Grecian style. The windows have been traced in patterns, and keystones formed. The work, which it is estimated will cost about 200*l.*, has been carried out by Mr. W. Pimm, from the designs of Messrs. Waller & Son, architects.

Southwick.—On the 12th ult. a meeting was held at Southwick, near Brighton, to hear a report from Mr. Brock, of the firm of Messrs. E. Habershon & Brock, architects, London, relating to the condition of the tower and spire of the above church. The report stated that the tower was originally built about eleven hundred years since, and that the foundations were giving way, and required strengthening. The spire also required some repairs. The cost of the necessary works was estimated at 300*l.* A committee was appointed to carry out the recommendations of the architect.

Sheffield.—St. James's Church, Sheffield, was reopened on the 28th ult., after alteration and renovation, at a cost of 1,500*l.* The works have been carried out under the direction of Messrs. Flockton & Abbott, architects. The new pulpit and reading-desk have been executed from their designs by Mr. Hayball, wood-carver.

Heaton Moor.—St. Paul's Church, Heaton Moor, was opened on the 29th ult. The church was erected from designs by Messrs. Bird & Whittenbury, of Manchester, and is in the Early Geometric style. The building consists of a nave of four bays, 67 ft. long and 24 ft. wide, with north and south aisles. The chancel is 30 ft. long and 22 ft. wide. On the north side of the chancel is the organ-chamber, with vestries adjoining, and on the south side a tower has been erected, under which is the principal entrance to the church. There is also a porch on the south side. The roof is a barrel-vault in timber, with moulded ribs, resting on stone shafts with moulded caps and bases, and is 44 ft. from the floor to the ridge. The chancel roof is of similar construction, but rather richer in detail. It is 36 ft. from the floor to the ridge. Sitting accommodation has been provided for 425 persons. The exterior of the building is faced with parpoint, and Yorkshire stone dressings have been applied to the buttresses and windows with nice effect. The roofs are covered with Welsh slates. The tower is at present only carried up to the belfry stage. The building will be warmed by apparatus supplied by Mr. Whittaker, of Bolton. The total cost will be about 5,500*l.* The contract for the erection of the church was taken by Mr. James Terras, of Stockport-road. Mr. J. Cordingley was the sub-contractor for the masonry, Mr. Griffiths for the plumbing, Mr. A. Brierley for the plastering and painting, Mr. Barrow for the gas-fittings, Mr. T. Ashworth for the ironwork, Messrs. Edmundson for the glass, and Mr. W. Dale for the tiling.

Culworth.—Funds are being raised for the restoration of the parish church of Culworth. The building is of Early English date, and is dedicated to the Blessed Virgin. It consists of a chancel with vestry attached, nave and side aisles, and tower. The present chancel was built when the exterior of the church was restored about forty years ago; but the interior was not interfered with, the old oak pewing dating back as far as 1450, while the font bears the date of 1662. It is more on account of the old-fashioned mode of seating being highly inconvenient, and the desire to be in harmony with other restored churches, that the restoration of the interior was decided upon. The proposition is to reseat the whole of the church, except the north aisle, with open seats in the place of the high-backed ones, to remove the organ from the western arch into an organ-chamber in the chancel, and to have the choir also in the chancel. The expense is estimated at about 700*l.*

Hunton.—The parish church of St. Mary, Hunton, was re-opened on the 28th ult., after internal restoration by Mr. W. Vaughan, of Maidstone, builder. Care has been taken to

adhere as strictly as possible to the ancient style of the building. The gallery at the west end has been removed, and the belfry thrown open. The floor has been re-tiled, open sittings have been provided throughout, and a new pulpit and reading-desk have replaced those which previously existed. The walls have been re-plastered. In course of the work the opening to a vault belonging to the Fane family, supposed to belong to the fourteenth century, was discovered. Mr. Ewan Christian was the architect, under whose direction the restoration was effected.

Wolviston.—The new church lately erected at Wolviston, near Stockton-on-Tees, was consecrated a few days since by the Bishop of Durham. The new church is erected on a site the gift of the Dean and Chapter of Durham. It is dedicated to St. Peter, and consists of nave and chancel, organ chapel, and vestry, with arch opening to the chancel. The roof is open to the ridge. The building is intended to accommodate 200 worshippers. The total cost was 2,315*l.* The architects were Messrs. Austen, Johnson, & Hicks, of Newcastle-on-Tyne, and the builder was Mr. Robert Borrowdale, of Darlington.

Rousdon.—Rousdon, near Lyme Regis, has had a church for hundreds of years, but when Sir Henry Peek bought the property it was in a woefully dilapidated condition. With its thatched roof out of repair, and crumbling walls, the building looked more like a barn than a place of worship. Indeed, it had not been used for any sacred purpose for many a long year; and it is even said that a pack of hounds had actually kennelled in it. Sir Henry resolved to pull down and rebuild the church, and this was one of the first pieces of work done on the estate. The new church, which is a Gothic structure, was opened four years ago. Though the population of the parish of Rousdon was then and is still very small, the church has been so well attended that Sir Henry was induced to enlarge it, and that has just been done by the addition of a chancel and south transept. On the 28th ult. the Bishop of the Diocese went to Rousdon for the purpose of consecrating the new work. The builder was Mr. Moass, of Exeter, and Messrs. Ernest George & Peto were the architects.

DISSENTING CHURCH BUILDING NEWS.

Gilwern.—The foundation stone of a new Baptist chapel was laid at Gilwern on the 7th ult. The contractor is Mr. Burgoine, of Blaenafon, and the cost will be 500*l.*

Wolverhampton.—On the 25th ult. four memorial stones of a new Primitive Methodist Chapel, at Wolverhampton, were laid with due ceremony. The total cost of the new building will be upwards of 1,000*l.* The contract for the shell is 715*l.* It will be a brick building, with Gothic front, with stone dressings over the doors, windows, and gables. A vestry and class-room will be provided at the rear. The accommodation provided will be for nearly 500 persons. The builder is Mr. A. Groves, and the architect Mr. Shepperd, both of Wolverhampton.

Goole.—On the 27th ult. the new Congregational Church, to be known as Christ Church, Goole, was opened for divine worship. The new church has been built from the designs of Mr. T. Porter, of London, at a cost exceeding 5,000*l.*

Malvern.—A new Congregational Church was opened at Malvern on the 28th ult. The style is Decorated. The building is arranged to seat 400 persons on the ground floor, with provision for a future end gallery, which would give 100 additional sittings. It is divided into nave and side aisles, by arcades carried on columns of Forest of Dean stone, with moulded caps and bases. Over the western arcade is a series of mullioned and traceried windows. The north wall is lighted by a large five-light traceried window, underneath which is a glazed screen of panelled and traceried woodwork, enclosing an entrance corridor. The south wall of the church is occupied by three traceried windows filled with stained glass, the wall underneath which is panelled and traceried with detached stone shafts, having carved caps and moulded bases, the arches and panels being designed for decoration in colours. On either side of the panelling is a moulded doorway leading to the vestries. The space in front of the south wall forms the Communion platform, which is enclosed with a moulded rail on wrought-metal foliated standards. Spacious vestries are provided at the south end of the church. Externally the walling is of Cradley stone, rock-faced, in level courses, with dressings of Bath stone. The roofs are covered

with Broseley tiles. The rapid slope of the hill-side on which the church stands gives a much greater height to the east than to the west side of the church, and the difference in levels has been turned to account by forming under the east end a commodious lecture-room, lighted by a series of deeply-recessed arched windows. At the northern angle of the east front are a tower and spire, 135 ft. high. The contractor is Mr. Meredith, of Gloucester. The heating apparatus is by Messrs. Truswell & Holden, of Sheffield. The works have been executed from the designs and under the superintendence of the architect, Mr. Tait, of Leicester. The carving is by Mr. Forsyth, of Worcester. The total cost, including 1,100*l.* for the site, has been about 5,200*l.*

Newark.—A new Baptist Chapel was opened at Newark on the 26th ult. The building occupies the site of the old structure, near the General Hospital, in Albert-street, and is Gothic in style. The nave is 54 ft. long by 26 ft. wide, the aisles being each 10 ft. in width. The roof is open-timbered, with a queen-post roof, ornamented by iron panelling. The seats throughout the chapel are of red deal, stained and varnished, and are of a very comfortable kind. At the end is a platform, and behind it is a singers' gallery. The heating of the chapel will be effected by the use of superheated hot-water pipes, manufactured by Messrs. Longbottom, of Leeds. Accommodation is provided on the ground-floor for 300 persons, but provision has been made for future extension. A separate building has been erected for school purposes. The architects are Messrs. Dury & Mortimer, Lincoln, and the builder is Mr. Duke, of Newark. The cost in money, in addition to the value of old material, will be about 1,700*l.*

Bradford.—Old Dolphin Chapel, Clayton Heights, Bradford, was re-opened on the 24th ult. after alteration and redecoration. The works have been carried out by Mr. John Hodgson, of Queensbury.

Bunbury.—A new Primitive Methodist chapel was opened at Bunbury, Cheshire, on the 23rd ult. The chapel is built at the top of what is known as the College-lane, and will seat about 130. There are pews on about one-half of the floor, and the rest of the space will be occupied by forms. Mr. Parker, of Beeston, has been the builder.

SCHOOL-BUILDING NEWS.

Willenhall.—On the 4th ult. the memorial stones of new Sunday schools in connexion with the Primitive Methodist denomination were laid at Willenhall. The buildings now commenced will supersede those in Cannon-street. The cost will be 1,200*l.*, the contract having been taken by Mr. J. H. Hunter, of Willenhall, the plans being prepared by Mr. Homeyard, architect, Birmingham. The buildings, which face Russell-street, will be of brick, with stone dressings, and with class and large rooms, will afford accommodation for 400 children.

Ingatestone.—On the 27th ult. the memorial stone of the new Congregational Sunday School at Ingatestone was laid. Concurrently with the erection of the school the chapel itself is to be thoroughly renovated and rebennched, the estimated cost of the whole being about 1,000*l.* The plans prepared by Mr. C. Periwée, the architect, have been entrusted to Messrs. Choat & Son, builders, of Chelmsford, to execute. The school will be a neat structure in red brick relieved by white bands, and it will accommodate some 200 scholars, the schoolroom, 50 ft. by 19 ft., being supplemented by four class-rooms.

Rousdon.—New National schools, which have been erected on the main road between Seaton and Lyme Regis, close by the northern entrance of the mansion in course of erection at Rousdon for Sir Henry Peek, were opened on the 28th ult. The schools have been built at Sir Henry's cost. They occupy a considerable piece of land, and have open and covered playgrounds. The schools are situated on the confines of three parishes, and although the district is only thinly populated, it is anticipated that nearly 100 children will be brought together. Sir Henry Peek has provided for the little ones being supplied with a hot dinner every day, at a nominal cost, and a dining-room has been incorporated with the schools, communicating with the master's kitchen. There is the usual mixed schoolroom, infants' room, and class-room; and, besides these, committee and visitors' rooms are provided. The materials used in the erection of the buildings are of excellent quality. English oak is used wherever wood is required, and

internally the rooms are skirted with dados of that material. The floors and joinery generally are also of oak. The external walls are of Chert stone, raised in a neighbouring quarry. The mullions and dressings generally are of Donling stone, whilst internally the walls are of red brick. The roofs are of Bridgwater tiles of a warm tint, and the chimney stacks are of Fareham brick. The architects are Messrs. Ernest George & Peto. The whole cost has been about 6,000l., and the contract has been carried out by Mr. Hutchings, of Colyford. The sgraffito work and the wood carving have been executed by Mr. Harry Hems. Mr. William Prosser was the clerk of works, and Mr. Berry the builder's foreman.

STAINED GLASS.

Dunster.—A new memorial three-light window has been placed in the east end of Dunster Church by Messrs. Clayton & Bell. The subject represented is the Crucifixion of our Lord, with scenes before and after that event, such as the Last Supper, His appearance to Mary Magdalene, &c. The window in the south aisle contains six lights, in which are representations, on painted glass, of the entombment of Our Saviour, His resurrection, His appearance to Mary Magdalene, and the Ascension. Five heraldic windows in the north and south aisles have been supplied by Mr. Drake, of Exeter.

Carrig-y-Drudion.—A stained window in memory of the late Mr. William Jones, of Catharine-street, Liverpool, has been erected in Carrig-y-Drudion Church. The subject illustrated is the Good Samaritan.

Richmond.—A painted glass window has been placed in St. Matthias's Church, Richmond, Surrey, to the memory of the late George Henry Ashbee, C.E. The window is of two lights, any the subjects represented are the "Nativity" and the "Adoration of the Magi." In the quatrefoil is the symbolical Lamb, and the panels below contain geometrical designs. The entire cost of the memorial, which is the work of Messrs. Hardman, of Birmingham, has been defrayed by the professional friends of the deceased gentleman.

Coltish.—The parish church in this village, which very recently was restored and enlarged, has just been enriched by the introduction of three stained-glass windows, designed and executed by Hughes, of London. That in the chancel, the gift of the rector, the Rev. W. M. Hoare, represents "The Adoration of the Shepherds" and "The Baptism of Christ." The other two windows are in the south side of the church, the one being given by Mr. Thomas Chambers, in memory of the late Mrs. Feltom; of Danton; and the other by Miss M. Case, in memory of the late Miss S. O. Chambers, of Gately. The former portrays the "Raising of Jairus's Daughter" and "The Good Samaritan." The latter represents "Mary and Martha," in the company of Jesus, and Christ as "The Good Shepherd."

THE PARIS EXHIBITION BUILDING.

MM. ROUSSEL, MOISANT, & BAUDET have been entrusted with the construction of the remaining three-fourths of the metallic galleries in the interior of the Exhibition. The masonry work, &c., will be adjudged at the end of this week. The work of the great cascade has already commenced, workmen being now employed in removing the stone steps on the Trocadero. One of the "great attractions" of the Exhibition will, it is stated, be a monster aquarium, capable of containing 400,000 gallons of water, in which four millions of pounds of fish can sport! The cost is estimated at one million of francs.

Another New Pavement.—At the meeting of the City Commissioners of Sewers, on the 26th ult., an application was made on behalf of Messrs. Poletti & Dimple, the inventors of a new description of pavement, for permission to lay down a portion of their pavement as an experiment in some part of the City, and the applicants requested permission to make the experiment in some part of the City where the traffic was of the heaviest character. The proposed new pavement was described as being more durable than either asphalt, granite, or wood, and to make no dust or mud, and to be also noiseless. The application was referred to the Streets Committee.

VARIORUM.

THE new number of "Picturesque Europe" illustrates Lullithgow Castle.—"This palace, the most stately and magnificent of the old Scottish royal residences, under the roof of which King James left his weeping queen when he departed for Flodden, and in the western wing of which his hapless grand-daughter was born, stands near the ancient burgh of the same name, on a high green knoll that is nearly insulated by a beautiful sheet of water, whereon the royal swans have floated from time immemorial. Even from a distance, it is evident to the eye that this great and massive edifice is divided into two distinct epochs of architecture. The lofty tower that frowns on the west, bare and utterly devoid of ornament, belongs to the thirteenth century, and has seen much of war and bloodshed; the rest of the quadrangle, which recalls the ruins of Heidelberg, with its floridity of detail, its cusped and mullioned windows, belongs to the days of James IV. and James V. The latter monarch erected the beautiful gateway, above which are carved in four panels his orders of knighthood, viz., St. Andrew, St. George, St. Michael, and the Golden Fleece. The highest summit of the palace is the bower of Queen Margaret, a groined and octagonal tower, accessible from the battlements only; and from thence a spacious view can be had of fertile West Lothian, and the high eminence beyond the loch, Cath-ail-rioh." The same number contains a capital view of St. Michael's Mount, Cornwall, engraved by J. Sandler, after a drawing by Birket Foster.—From "Old and New London" we take a brief account of the commencement of University College:—"On the east side of Gower-street is University College, which was founded in the year 1826, for the purpose of affording 'literary and scientific education at a moderate expense'; divinity being excluded. The credit of the idea of a university for London, in which the ancient languages should be taught, free from those artificial restrictions which bound Oxford and Cambridge so tightly, has generally been given to Lord Brougham and the other Whig politicians of his time. Cyrus Redding, however, in his 'Recollections,' claims the praise for Tom Campbell, the poet, who certainly took an active part in its foundation, and even journeyed,—indolent as he was by nature,—to Berlin in order to observe with his own eyes the professional system of Prussia, and to mature a plan for the government of the university. Testimony to the same effect was eventually borne by Lord Brougham himself. The foundation-stone of the college was laid on Monday, the 30th of April 1827, by H.R.H. the Duke of Sussex, who had long been associated with the leaders of the Whig party. The architect was Mr. William Wilkins, R.A., the designer of the National Gallery. The Duke of Sussex, on laying the stone, said, 'May God bless this undertaking which we have so happily commenced, and make it prosper for honour, happiness, and glory, not only of the metropolis but of the whole country.' He also expressed a hope that the undertaking would excite the old universities to fresh exertions, and force them to reform abuses. An 'oration,' or prayer, was then offered up by the Rev. Dr. Maltby, afterwards Bishop of Durham. The ceremony was followed by a dinner at Freemasons' Hall, nearly all the chief Whigs of the day being among the guests."—*Little Folks* tells the children "Where India-rubber comes from." Some grown-up children may like to know also:—"The tree from which it is taken is one of the giants of the forest, growing to a height of 80 ft. or 100 ft., and sometimes measuring 70 ft. round the trunk. From the extreme top the branches spread, clothed with dark glossy leaves. It is said that tracts of the country may be found where, for hundreds of miles together, these mighty trees are growing side by side. The natives come to them with little earthen cups, and, making cuttings in the bark, they leave a cup to fill under each hole. During the course of the day a small quantity (about a tumblerful) of a thick yellowish cream oozes out, and flows down into each cup. When full, they are all collected, and their contents poured into large earthen vessels. This is the caoutchouc, or india-rubber, in its natural state, and, by being poured into moulds, and dried, it can now be formed into any shape. Many of the natives are employed in making india-rubber shoes. They take wooden lasts, and cover them with clay to prevent them from sticking to the shoe. Then they pour

the thick caoutchouc all over these moulds, hold them for a while over a fire, and then, fastening each on top of a stick planted in the ground, they leave them to dry in the sun. Then the caoutchouc is poured on again, and in this way coating after coating is formed, and after each layer is put on the shoe is held in the smoke of the wood fire, and so it gets its dark colour, and dries more quickly. The caoutchouc is also dried and smoked when it is being made into the large thick slabs,—the general form in which it is shipped from Brazil to all parts of the world."

Miscellaneous.

Nomenclature of London Streets.—In the last twenty years the Metropolitan Board of Works has revised the names of 1,916 streets, and abolished 6,740 names of subsidiary portions of streets rendered unnecessary on renumbering the whole street. The Board has given new numbers to 143,409 houses. A general index of the names of existing streets has been compiled, and an index of abolished names, and plans of all the revised streets, showing the old and new numbers against the block plan of each house; these plans are bound up in atlas-form for reference and the identification of properties. The superintending architect of the Board reports the practice followed in numbering houses:—"St. Paul's Cathedral is recognised as a central point, and the numbering of houses, when altered, and also in new streets, begins at the entrance or end of the street nearest to that building; but where both entrances to a street are about equally distant from St. Paul's the numbering begins at the entrance abutting on the most important thoroughfare. Taking, then, the sides of the streets as left and right (assuming that the back is towards St. Paul's), the odd numbers will be assigned to the left-hand side, and the even numbers to the right-hand side. No name is to be used for a street without the approval of the Board; and it must be a name consisting, if possible, of one word (with the addition of "street") not already in use in the metropolis in street nomenclature. Names for terraces or other blocks of houses and sections of streets, usually known as subsidiary names, will not be recognised; nor such names as are already in use for provincial towns and postal places." The superintending architect mentions in his report in 1875 that on the suggestion of the vestry of Chelsea the new approach from Queen's-road West to the river adjoining Chelsea Hospital is named "Tite-street" (in compliment to the late Sir William Tite, who was for many years a member of the Board), and the short street connecting the latter with Swan-walk, "Dilke-street," and under the regulations adopted by the Board, Chelsea has a species of copyright in these as London street names.

A Man Washed Away in a Sewer.—On the 28th ult., a sad accident, if it can fairly be so designated, occurred at Hampstead. It appears that William Evans, a bricklayer, aged about 60, and William Hipwell, a labourer, a younger man, went down into the main sewer on Haverstock-hill, about eight o'clock in the morning, to connect some house-drains therewith. The main sewer forms part of the metropolitan system, and both men were in the employ of the Hampstead Vestry. Between nine o'clock and half-past there was a heavy storm of rain at Hampstead, and the water rushed through the sewers with great force. The men's lights were extinguished, and they themselves were swept onward by the force of the water. Hipwell managed to seize hold of the side of the sewer after being washed some distance, and called out for help. After occupying his perilous position for some time he was rescued. The body of the unfortunate man Evans was found by Thomas Anthony, inspector of flushers, about a quarter past two on Saturday morning, about 20 yards south of Stratford-road. An inquest was held on the 2nd inst., when Mr. Lowe, the surveyor of Hampstead, produced plans, and said when washed away the deceased must have passed through the parish sewer into the Fleet Ditch, and then into the main-drainage system, and right on to West Ham, a distance of seven miles. The sewer deceased was at work in was a brick one, 3 ft. 9 in. by 2 ft. 6 in. The jury returned a verdict of "accidental death." We have frequently insisted on the necessity of adopting means to give warning of the approach of storm-water to sewer-flushers and others engaged in the sewers.

London Wall.—Five houses have recently been taken down for rebuilding.—Nos. 23 to 32, Camomile-street, close to the junction of the latter with Bishopsgate-street,—and the work of excavation has revealed a length of about 36 ft. of the ancient wall and bastion. The wall was fully 9 ft. thick; the bastion projected on the northern side, and was rather more than a semi-circle, and was solid; it measured about 16 ft. across; the heights varied from 2 ft. to about 4 ft. 6 in., and the whole mass was met with about 10 ft. below the present level of Camomile-street. The wall had had faces of roughly-wrought stone, with a double band of the usual bright red tiles on the City side, but on the outer side much dark ironstone was used, and no tiles were observable. Much of the walling is of Kentish ironstone, and large blocks of greenstone are also conspicuous. The presence of materials, therefore, from Northamptonshire, Surrey, and Kent is thought to point to a period for the erection of the wall when the Romans had practical knowledge of the country and ability to transport their building materials from considerable distances. The core of the wall was formed of hard rubble, solidly bedded in still harder mortar formed of bright coarse gravel, as is frequently the case in London, with but little of the pounded brick so often considered as evidence of Roman workmanship. Mr. E. P. L. Brook, F.S.A., suggests that the bastion met with was probably the first along the course of the wall eastward from Bishop's Gate,—a gate probably of later foundation than Roman times. The soil on the City side was hard clay, and the contrast to the dark-coloured earth on the outlet or Houndsditch side was very apparent.

The Introduction of Printing.—Mr. Hodson, the secretary of the Printers' Pension Corporation, has issued a circular letter, suggesting that the 400th anniversary of the introduction into this country of the art of printing should be celebrated. Adopting 1477 as the date of the introduction of printing into England, Mr. Hodson says:—"Whether as a matter of history, or as marking, perhaps, the most important epoch in the progress of civilisation, I respectfully submit that it is eminently desirable to signalise this 400th anniversary of English printing by some suitable public manifestation. The Printers' Pension, Almshouse, and Orphan Asylum Corporation was made the depository of the fund collected in 1847, when an effort was made, at the instigation of the late Very Rev. Dr. Henry Hart Milman, to erect a monument to commemorate the introduction of printing into England, and in honour of William Caxton; and the 'Caxton Pensioner' thus became a living memorial of the founder of English printing. From this circumstance the Printers' Corporation would appear to be the most fitting body to undertake this quatercentenary celebration, and as the corporation is about completing its fiftieth year of existence, the time would appear opportune also, as its Jubilee Festival could be commemorated at the same time. I venture, therefore, to make the following suggestion:—To hold an Exhibition of Antiquities and Curiosities connected with the art at some suitable public building (the Stationers' Company might be solicited to offer their hall), such exhibition to be open for not less than a week, and to be held in June next; and to hold the Jubilee Festival of the Corporation during the same week."

The Church Congress at Plymouth.—This Congress was opened on the 3rd inst. at the new Guildhall, Plymouth. The law courts and the suites of rooms connected therewith are all laid under requisition. In the Eastern Court Messrs. Fouracre & Watson, Stonehouse, exhibit examples of their stained glass, including windows for Tavistock and St. Budeaux; and Mr. Harry Hems, of Exeter, illustrates, by a series of one hundred photographs, his sculptural work. He also sends two sculptured panels in alabaster. These latter represented respectively:—Paul preaching at Athens, and John the Baptist teaching in the Wilderness. They will eventually occupy places in a new pulpit he is making for the Church of St. George, at Georgeham, Devon.

Modern Painting.—Mr. Albert Pell, M.P., attended a *conversazione* on the 28th ult. on the occasion of the opening of a new building in connexion with the Leicester Town Museum and School of Art. He delivered an address on the subject of modern painting, maintaining that whatever might be said of our portrait-painters, no nation surpassed English landscape artists.

Trade Unions in Scotland.—Last year, according to a Parliamentary paper just issued, six Trade Unions were registered in Scotland, and three received certificates of alterations. Thirty Trade Unions have been registered in Scotland, and from an abstract received for 1875 it appears one paid in the year 505*l.* for strikes and another 309*l.* The registrar, in his report, states that he is "desirous that the attention of members of Trade Unions should be called to the clauses made by the Trade Union Amendment Act of this Session (39 and 40 Vic., cap. 22). These are principally the change in the definition of the term 'Trade Union,' by the removal of the test founded on the illegality of combination in restraint of trade (section 16); the legalising of assurances by members on the lives of their wives and children by the extension to Trade Unions of the exemption from the operation of the Life Assurance Companies Act, 1870,—a privilege hitherto accorded only to Friendly Societies (section 7); the restriction imposed on assurances on the lives of children by the application to Trade Unions of section 28 of the Friendly Societies Act, 1875 (section 2); provisions as to membership of minors (section 9); and payment of sums on death to nominees of members (section 10), with other provisions derived from the Friendly Societies Act above mentioned."

A Monster Hotel.—St. Louis (says an American paper) does not intend to be behind Chicago in the matter of hotels. A new one is going up on the corner of Grand and Page avenues, and if the plan is carried out it will have no superiors for size in the country. The building, with an inclosed court 200 ft. square, will cover over four acres of ground, and be built of Missouri granite and sandstone. It will be ten stories high, be lighted by 2,100 windows, and contain over 2,000 rooms. It will accommodate 3,500 persons. The front on Page-avenue will be the principal façade, and have a length of 387 ft. 6 in. The interior court will be covered with blinded glass at a height of 42 ft. above the ground. It will be a conservatory blooming with tropical plants, and a fountain will scatter its cooling spray over the shaded walks. The sides of the building facing the court will contain 600 windows. The structure will be in full height 140 ft. from the curbstone to the open line of the cornice. The base will be of Missouri granite, and all above will be white sandstone. There will be eight elevators in the building, each with a capacity to carry fifteen persons, and there will be four stairways ascending from the basement to the top story. The upper story on the grand avenue side will have a billiard-room with thirty tables.

Steam on Tramways.—On the 20th ult. another experimental trial of the steam traction engine constructed by Messrs. H. Hughes & Co., Loughborough, was made between Edinburgh and Portobello. An ordinary tramway carriage was attached to the new engine, the leading feature of which is that the exhaust steam is thoroughly condensed. This is done by carrying a supply of cold water in a tank above the engine, which is supplied automatically to an apparatus beneath, so that at whatever speed the engine is running, or however much steam is being used, the proper supply of cold water is provided. It is not a condensing engine in the ordinary sense of stationary engines, but the steam is simply cooled to a temperature of 180°. The supply of cold water does not increase the weight of it to more than that required for the necessary adhesion to the rails. For the last few days trials have been made on the same lines between 5 and 8.30 a.m., and it has been found by these experiments that with a coke fire no firing need take place in the double journey between Edinburgh and Portobello, and that the amount of water required for condensing is about forty gallons per mile. The average pressure of steam per square inch is 30 lb.

Sheffield Manufactures in America.—The *Sheffield Telegraph* states that Sanderson Brothers & Co., the oldest steel manufacturing concern in Sheffield, have determined to transfer their American business to America, where they will convey Sheffield workmen and Sheffield trade secrets for steel-making. For this purpose works have been bought at Syracuse, State of New York, and a new company formed, with a capital of \$450,000, largely held in Sheffield. The works are already in operation, and the steel is guaranteed fully equal to that of Sheffield make: the heavy protective duties will be wholly evaded.

The Bolebridge, Tamworth.—At a meeting of the Tamworth town council on the 22nd ult., it was resolved,—"That the Bolebridge within this borough be altered, widened, rebuilt, and improved, in accordance with the plans and specifications of Mr. C. H. Cope, and that the tender of Messrs. Goddard & Massey for the ironwork, of 1,641*l.*, and of Mr. Henry Mottram for the other work specified, of 1,490*l.*, be accepted; and that the two contracts be entered into by the town council, and the corporate seal affixed thereto by the mayor, security being given by both contractors for the due performance of the work." Further work to the estimated value of 500*l.* will be required to complete the bridge. The proposed new bridge will be a box-iron girder structure, resting on blue-brick piers with stone facings. The carriage-way is to be 20 ft. in width, with a gallery footpath on the east side 4 ft. wide. The bridge will have a clear span for waterway of 100 ft., and will be built slightly on the skew.

Font-cover at St. Sidwell's, Exeter.—St. Sidwell's Church, Exeter, has just received an addition in the shape of an elaborately carved font-cover, designed by Mr. Edward Ashworth, architect, in the Perpendicular style. Octagonal at the base, it takes a spiral form towards the top. Ribs, enriched by carved crockets, spring from buttresses, and clustering together at the top, terminate by a rich finial of foliage. The lower panels are pierced by tracery, surmounted by embattlements, whilst at the junction of the ribs and buttresses lofty pinnacles jut up. The cover has been wrought out of an ancient beam of oak, by Mr. Harry Hems, under the immediate supervision of the architect. It is supported by a wrought-iron bracket, designed by Mr. Ashworth, and made by Mr. Rice, of St. Sidwell's.

Public Works in New Zealand.—The Public Works statement was made by the Hon. Mr. Richardson on the 25th of July. He stated that the mileage of railways was,—1,030 authorised, 459 open for traffic, and 382 in progress. The amount spent on railways during the past year was 1,639,014*l.*, making a total expenditure on railways of 5,215,018*l.*, with liabilities, extending to 1878, of 983,253*l.* If the estimate prove correct, it is calculated that the railways open for traffic ought to give next year about 3 per cent. on their capitalised cost. The Brunton Gorge iron railway bridge, which was to be opened soon, fell (in July) with an awful crash into the river. The anchor-plates were not strong enough to bear the strain upon them, and snapped. No lives were lost.

Pulpit at New Shoreham Church.—A correspondent of a Brighton paper says:—"It has been already reported in your columns that the old church of St. Mary, New Shoreham, is being partially restored. A stone pulpit of ancient date has been obtained from the cathedral of Durham, and has been erected upon novel and purely scientific principles. This pulpit has already become an object of attraction to the local archaeologists, on account not alone of its history and intrinsic value, but also of its present position, for it is no less strange than true that it has been so placed as to render it a physical impossibility for any one but an acrobat to enter it, and on Sunday last the worthy vicar addressed his congregations from the communion-table."

Proposed Town Improvements at Denbigh.—The Denbigh Town Council has been discussing the desirability of borrowing a large sum of money from the Treasury for the purpose of carrying out various important improvements in the town. It was decided to prepare a scheme of necessary improvements, which should be submitted to a special Council meeting, to which the ratepayers should be invited and be given an opportunity of stating their opinions. The list prepared included the thorough drainage of the town where not completed, at an estimated cost of about 2,000*l.*; the erection of a cattle-market, the drainage of Henllan, part of the borough; the lighting of the castle district with gas; the thorough paving of several streets; and numerous similar improvements.

Provision for the Future.—In the province of Biscay every landowner must plant two saplings for every timber tree he cuts down. In Java the birth of every child is celebrated by planting a fruit-tree, which is carefully tended as a record of the age of the child whose birth it registers. This wise regard for the future deserves imitation.

Demolition of Houses by Limelight.

For the completion of the improvements in the Poultry there were two lofty buildings, numbered 36 and 37, situate between the Old Jewry and Grocers' Hall-court, awaiting demolition. The materials were sold on the 26th ult. by Messrs. Horne, Eversfield, & Co., and being found to be in an unsafe condition, Mr. Haywood, chief engineer to the Corporation, issued imperative orders for their removal on the night of the 28th ult., it being considered unsafe to allow the work to be performed in the daytime. It was entrusted to Mr. Iron, the auctioneers' manager, under whom Mr. Barlow directed the workmen. The carriage traffic was stopped at eight o'clock, and at midnight large numbers of persons were watching the work of demolition. The limelight was worked by Mr. Wood, of Cheapside.

New Organ at Holy Trinity Church, Hull.—The new organ in Holy Trinity Church, Hull, was "inaugurated" on the 26th ult. The instrument has been built by Messrs. Forster & Andrews, and stands in the south transept, with its front projecting a short distance beyond the line of the centre aisle of the nave under the tower, and the sides so arranged as to interfere as little as possible with the view from nave to chancel. The pneumatic movement is applied to great, swell, and pedal keys, and all couplers in connexion therewith. The pedal-board is of the latest improved construction, and wind is supplied at various pressures suitable for the different qualities of tone. The dimensions of the organ are 36 ft. high, 16 ft. 6 in. wide, and 22 ft. deep.

India-rubber.—Consul Green, reporting on the trade of the Brazilian provinces of Para and Amazonas, states that the crop of india-rubber, which was little over 2,000 tons in 1861, has been steadily increasing ever since, and reached 6,763 tons in the year 1875. He is able to add that there are vast rubber-yielding districts which have never yet been touched, and that if the rumours that the old districts are becoming exhausted should be correct, there is no reason why the yearly collection should not, in ordinary seasons, continue the steady increase it has shown for some years past, so long as there is an outlet for the produce in the European markets.

Value of Land in London.—The piece of land on the eastern side of Northumberland-avenue between the new thoroughfare and Northumberland-street, we are told, has just been let by the Metropolitan Board of Works. It consists of about a statute acre, and has a frontage to Charing-cross, a frontage to Northumberland-avenue, and a third frontage to Northumberland-street. The rent agreed upon is 58,000l. per annum for ninety years, and, though there is one year at a peppercorn, this peppercorn really amounts to 4,350l., this being the interest on the first year's rent, which is to be paid within six months, or eighteen months before it becomes due.

To Soften and Purify Water.—Will you be good enough to allow me to make known, in your columns, the extremely simple discovery that I have made, that hard waters are rendered very soft and pure, rivaling distilled water, by merely boiling a two-ounce phial, say, in a kettleful of water? The carbonate of lime and any impurities will be found adhering to the phial. The water boils very much quicker at the same time. The knowledge of this fact will prove a boon to housewives and laundresses, as well as to brewers, as it is affirmed that good porter cannot be brewed out of London.

JAMES BRUCE.

Proposed Testimonial to Sir John Steel, R.S.A.—An influential committee has been formed in Edinburgh for the purpose of making some tangible acknowledgment of the labours of Sir John Steel, the sculptor of the Edinburgh Albert Memorial, on the part of his fellow-townsmen. It is intended that the testimonial shall assume a national character.

TENDERS

For schools, at Pillowell, near Lydney, for the Forest of Dean U. D. School Board. Messrs. Haddon, Brothers, architects:—

Schools.	Residences.
Coleman, Brothers .. £3,626 0 0	£1,411 0 0
Jones & Co. 3,570 0 0	1,308 0 0
West & Jones .. 3,265 3 11	1,181 11 2
Welsh	1,250 0 0
James	3,081 1 1
Bowers (accepted) .. 2,856 15 0	1,056 6 0

For new gymnasium (carcase only), on the College ground, for the Malvern College. Messrs. Haddon, Brothers, architects:—

Porter (accepted) £1,030 0 0

For schools, residences, and boundaries, at Bilson, Cinderford, for the Forest of Dean U. D. School Board. Messrs. Haddon, Brothers, architects:—

Coleman, Brothers .. £5,968 0 0
We'ish
Jones & Co. 5,651 0 0
Marfell
Bowers
West & Jones .. 4,893 3 8
Ratcliffe & Co. 3,797 0 0

For enlarging the Lyttelton Grammar School buildings, at Great Malvern. Messrs. Haddon, Brothers, architects:—

Everal
Inwood
Porter (accepted) .. 450 0 0

For the erection of a villa residence, at Ealing, for Mr. W. Francis. Mr. W. J. Green, architect. Quantities supplied:—

Richards
Nye
Whiteley
Adams & Son
Bayes, Brothers, & Co. 2,017 0 0

For the erection of a pair of nine-roomed villas, at Coleraine Park, Tottenham, for Mr. F. Parker. Mr. S. Hayward, architect:—

Co-operative Building Society... £1,700 0 0
Cohen
Wyeth
Burbridge & Son

For rebuilding the Boys' Home, including new story to workshop, Stepney-causeway, for Dr. Barnardo. Mr. E. Gregg, architect:—

J. & F. Coleman .. £11,740 0 0
Baker & Son
Asbby, Brothers
Hill, Higgs, & Hill .. 11,248 0 0
Rider & Son
Dove, Brothers
Kilby
Ennor
Jacobs (accepted) .. 10,170 0 0

For the erection of warehouses, in Plough-yard, Bishopsgate, for Mr. Bianchi. Mr. W. Mundy, architect:—

Croaker
Ennor
Wood
Hearle & Son
Stamp & Bowtle
Thomerson

For alterations to No 87, Cannon-street-road, for Mr. Owen Edwards. Mr. W. Mundy, architect:—

Johnson
Hearle & Son
Wood
Stamp & Bowtle
Thomerson

For the erection of offices, in Baker-street, Enfield. Mr. T. J. Hill, architect:—

Frat & Wiseman .. £311 0 0
Fairhead
L. & W. D. Patman .. 283 0 0

For the erection of a board-room, &c., in Marloes-road Kensington, for the guardians of St. Mary Abbots, Kensington. Messrs. E. Power & Wheeler, architects. Quantities by Mr. W. Barnett:—

Board-room.	Strong-room.
Brass	£1,635
Newman & Mann .. 1,500	300
Maoey	1,477
Colls	1,429
Sewell	1,406
Aitchison & Walker .. 1,355	249
Bayes, Brothers, & Allen .. 1,372	230
Mills	1,415
Hook & O'drey	1,319
Smale	1,353
Browne & Robinson .. 967	256

For proposed new offices, with residence adjoining, for the Windsor Gas Company. Mr. W. Pim, architect. Quantities supplied by Mr. Herring:—

Gray
Hollis

Accepted for New Community House, Ditchingham. Part of first contract. Mr. Frere, architect:—

J. B. & F. Bennett .. £2,250 0 0

Accepted for vicarage, Moss, Doncaster. Mr. Frere, architect:—

Shillitoe & Morgan .. £1,800 0 0

Accepted for mortuary chapel, Ditchingham. Mr. Frere, architect:—

Morris

For the erection of business premises and residence, at Radstock, Bath. Mr. E. T. Boston, architect. Quantities by the architect:—

Vallis (accepted) .. £9,457 0 0

For the erection of a new warehouse, on the site of 113, Golden-lane, St. Luke's, for Mr. B. Newsome. Messrs. Elkington & Son, architects. Quantities supplied:—

Kilby
Lawrence
Colls & Sons
Corder
Newman & Mann .. 1,550 0 0
Rider & Son

TO CORRESPONDENTS.

S.—H. U. Z.—J. G.—J. H.—Rev. H. S.—F. J. K.—L. W. D.—H. St. J.—G. H. J.—T. W. R.—J. L. W.—R. O. R.—C. E. F.—M.—J. S.—A. S.—G. W. T.—Mr. P.—C. C.—S. H.—G. F. S.—J. F.—A. Joiner (ships' joiners are of course preferred).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

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Vol. XXXIV. No. 1728.

SATURDAY, OCTOBER 14, 1878.

ILLUSTRATIONS.

The Artists' Hall, Buda-Pest.—Herr Adolf Lang, Architect 1000
The Royal Masonic Institution for Girls, Wandsworth Common (Plan, 1003).—Showing Additions now in Progress 1001

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Old Streets in Paris. The New Avenue de l'Opéra.

OR a long time past the project of this important opening has been before the Paris public, and in view of the approaching demolition, the proprietors of houses on the line of operations have for some time had notice to quit, and we are assured that the work of demolition will commence at once, opening up direct communication between the Louvre and the Boulevard des Capucines.

In the intention, therefore, of obtaining the necessary funds to carry out their plans (Imperial plans,—for it will be remembered that the new thoroughfare was to have been named the Avenue de Napoléon), early in May of this year a

council was held by the municipality, at which it was determined that a loan of 120 millions of francs should be issued, repayable in seventy-three annuities, from the year 1877. This large sum (4,800,000*l.*) was to be employed as follows:—

	Francs.
For the Avenue de l'Opéra, what would be got back by re-selling the land deducted	45,000,000
For the Boulevard St. Germain	25,000,000
For the entrepôt of Bercy,—that great abreuvoir of the capital	40,000,000
For lightening the quay of Javel, in order to stop any future chance of inundation	2,000,000
For the construction of schools	5,000,000
For the general expenses	3,000,000

Making a total of..... 120,000,000

On the 27th of June the President promulgated the law authorising the city of Paris to issue the necessary loan, and by this time operations have commenced. Measures have been taken by the Prefecture of the Seine, in order that the Avenue should be opened for the Universal Exhibition of 1878. With this view the works of demolition will be continued all through the winter, and we see that the "cahier des charges" imposes on all purchasers of ground on the line the obligation of having their houses finished by the 1st of April, 1878. Between the 1st of April, 1877, when the demolition will be completed, and that date, when the time will expire for the construction, remains only a year; but builders in Paris

are by no means slow, and they will, doubtless, know how to employ the time profitably, and the programme will be carried out.

That the new street will be a straight one there can be no question; but there is really no reason why all the houses in it should be alike, and like also so many other houses in other similar Parisian thoroughfares. Judging by the ends which are already finished, the new avenue is likely to be little more than another Rue du 4 Septembre; but, surely, there are streets enough of that description; there are certainly others the beauty of which is deserving of imitation.

The Boulevard Centrale at Brussels, the production of French art and labour it is true, has the merit, at least, of more variety of outline; and this variety is due to the happy thought of the municipality, who offered at the outset of the enterprise a large premium to the owner of the handsomest house in the boulevard, and in several instances the architects have not failed in appreciating and successfully imitating the grandiose and picturesque charms of Flemish domestic architecture.

At present we have only to deal with the Avenue de l'Opéra, for the construction of which, as above stated, the work of demolition will be immediately begun.

As might be expected, the piercing of such a broad, lengthy, and important way of communication, must cause a number of old streets to give way, and it is the history and associations connected with some of these same old streets that we propose now to talk about.

Every visitor to Paris knows well M. Garnier's new Opera-house, that enormous block of architecture and sculpture in the Boulevard des Italiens, which has taken fifteen years to build, and which has cost the nation no less than 35,000,000 francs.

But it is not everybody, in looking down the already-commenced and evenly built-up opening of the Avenue de l'Opéra (this part dates from 1873), who knows that in the straight line that leads from where he stands to the Place du Théâtre Français, just near the Palais Royal, are a number of narrow, dark, and crowded up streets, which, however, retain many remains of better days. There are but few strangers who look further down this opening than at the interesting show Goupil & Company have artfully made at their corner shop, and perhaps the Americans in Paris, who have all discovered the well-arranged office of the *New York Herald* on the right-hand side of the street.

We intend, however, to go further than this, and take the reader over the at-present unbroken ground, and show him what there is of interest in the streets that are about to come down.

Having approached the end of that part of the opening which is finished, exactly in the middle of the way we find a block of houses in the Rue Louis le Grand which will be demolished. This street is not a very ancient one, having been made, as its name implies, in the reign of the *Grand Monarque*; in fact, it was made just at the

height of Louis's fame, when forty years of victory had entitled him to the epithet, which he has ever since borne (1701). *Mme. de Montespan* lived for many years, and died, in this street (1709).

We now cross the Rue Neuve St. Augustin. This street derives its name, so *Jaillot* tells us, from the fact that it ran along the wall of the cloister of the Augustin Friars. Here, in the old days, there stood several important mansions which have long since disappeared, the Hôtel de Grammont (razed in 1766) and the Hôtel de la Vallière stand no more. At No. 55, on the left-hand side, as you look to the Rue de la Paix, lived and died (1824) *Girodet-Trioson*, the pupil of David, the painter.

Still advancing, we have now to make a long *détour*, as a block of buildings prevents us from, following the line of the future avenue. We however, turn to the right up the Rue d'Antin, about which we must say a few words. The street derives its name from the Hôtel d'Antin, which was situated where now meet the Rue d'Antin and the Rue du Port Mahon. It was built in 1707, but some difficulties arising after it was finished, the king (Louis XIV.) took it from the proprietor, and gave it in 1712 to M. le Comte de Toulouse, who sold it next year to M. le Duc d'Antin, *Directeur des Bâtimens*. Some forty years afterwards, 1757, it took the name of the Hôtel de Richelieu, from the Marshal of that name, celebrated for his abandoned character, and his notwithstanding successful career. The Marshal was the grand-nephew of the cardinal of the same name.

When we get to the corner where the Rue d'Antin runs into the Rue Neuve des Petits Champs, we must stop; here is the place where, more than two hundred years ago (1652), took place a famous duel.

The whole of this neighbourhood was then unformed, for it is not an old one, most, if not all the streets, dating from the middle of the seventeenth century. In 1667 four private individuals purchased of the Abbé St. Victor, the ground in this neighbourhood, which belonged to him: and soon after, having obtained the permission of the king, proceeded to lay out and build a number of streets, many of which were on the place of already-existing paths and roads; as, for instance, the modern Rue d'Argenteuil, which is built on an old road originally leading to that village, connected with the painful history of the famous Abélard and Héloïse, for here was the convent where the latter retired to avoid the resentment of her uncle.

By 1677 the whole neighbourhood was studded over with houses, and the *quartier* took the name of Gaillon, from an hôtel of that name, on a part of which in later years was built the church of St. Roch. At this point existed at that time an old gate called the *Porte Gaillon*, and the street which ran from the hôtel of that name to this gate, which has preserved the name, as we shall see later on.

The *Butte des Moulins*, as it was then called

from the mills which were established on it, had, however, to be levelled, for it was quite a little mountain.

Covered as the *quartier* was with trees, the houses very sparsely scattered about, it presented a curiously different aspect to what it does now, situated between two such busy thoroughfares as the Boulevards and the Rue St. Honoré. It had been one of Richelieu's plans, which his death (1642) alone prevented from being carried out, to build on this untidy and dirty neighbourhood (called, in consequence, the *Champ Pourri*), a magnificent square to be called the *Place Ducale*, a counterpoise on the east to the *Place Royale* on the west.

It was then, here, before the *Butte* had been levelled and the streets pierced, when the trees were still thickly about, that took place the duel which caused much talk at the time, between the Duc de Beaufort (the son of Cæsar Vendôme, the bastard of Henry IV., and the beautiful Gabrielle d'Estrees) and his brother-in-law, the Duc de Nemours. For a long time there had been an enmity between them, till at last a challenge was sent and accepted, and the opponents met (July 30th, 1652) at seven in the evening, at the spot now marked by the corner of the Rue d'Antin, each accompanied by four seconds. It was the Duc de Nemours who, as the offended, fired the first shot, but, having missed, wished to rush with his drawn sword on his adversary, who, however, killed him on the spot with three balls in the breast. Of the seconds two were killed and several others severely wounded.

We have now to turn to the left, down the Rue Neuve des Petits Champs, to again get into the line of the new Avenue. In that part which is coming down there is nothing worthy of particular mention, though the street is interesting, for it contained, and does now contain, many curious features. Here stood formerly the *Hôtel Mazarin*, an enormous block of buildings which were subsequently parcelled out into different houses, each sufficiently large in themselves for any ordinary purposes, as will be understood when we state that the *Bibliothèque Nationale* now stands on a part of the site of this dwelling; that the modern Bourse occupies another part, and other portions have been built upon by private individuals. Part of the building was given up in 1719 to the *Compagnie des Indes*, who had here a magnificent *hôtel*.

Having now crossed the Rue Neuve des Petits Champs, and looked down the Rue de Gaillon, a part of which is about to give way, we have two courses to choose from. We may either continue along the Rue St. Roch and go down the Rue des Moineaux, or go farther along the Rue Neuve des Petits Champs, and, turning to the right, follow the Rue Ventadour and Rue Thérèse, and so along the Rue des Moulins. But here we must stop. We have mentioned a number of streets, all of which have a history. First let us take the Rue Gaillon, which recalls the old days of the foundation of the church of St. Roch.

In the *Hôtel Gaillon*, which we have mentioned above, were two chapels, or rather oratories, one dedicated to Ste. Suzanne, and the other to the *Cinq Plaies de Notre Sauveur*; this latter dates from the year 1521. At that time one Jacques Moyon, a Spaniard, obtained permission to build a hospital in the neighbourhood, for the use of the poor who might be afflicted with that most horrible of diseases, scrofula. However, the *quartier* increasing in size and population as it became more covered with houses, the two oratories before alluded to gave way to a church, which was built. But a very few years elapsed before this, even, was found to be inadequate to the wants of the neighbourhood, and in 1653 (March 28th) Louis XIV. and Anne of Austria laid the first stone of the present church of St. Roch, which took its name, without doubt, from the hospital above mentioned, which was for the use of the plague-stricken, whose patron saint is St. Roch. Probably our readers will recall, at the mention of the name, Rubens's *chef d'œuvre*, now at Alost, in Belgium, representing that saint.

Let us now follow the Rue Neuve des Petits Champs, which will lead us into the Rue des Moulins, about which we have something to say. If we follow the Rue St. Roch and the Rue des Moineaux, we shall have nothing of interest to mention. Let us, then, go the other way, down the Rue Neuve des Petits Champs, passing on the right the Rue Ventadour, until we come to the corner of the Rue des Moulins. Here stood originally the house that Lulli (1633—1687) constructed, and which brought him in an income of 1,600 livres or

frances yearly. The clever Italian, an artist like many of his countrymen, was yet a man of business, and knew how profitably to lay out the sums he gained by his talent. Probably our readers remember the history of the poor Italian boy, how he rose from being a mere kitchen drudge to be the head of the king's musicians, and became the founder of the modern opera.

We now turn up to the right, the Rue des Moulins, which, on the face of it, takes its name from the mills that existed here before the *butte* was levelled. It existed as a street, so Jaillet tells us, as early as 1624. We do not go far along it before we pass on the right the Rue Thérèse, with its old houses, cracked with age, blackened with smoke, and standing in solemn silence. It derives its name from Maria Thérèse, the wife of Louis XIV.; but, it appears, it was not till 1692 that the street was thus called; in fact, it was the Rue St. Thérèse, but, at the revolution in '89, it, with many other streets, was decanonised, and it has remained so till this day.

In continuing down the Rue des Moulins, we next come, on the left, at No. 14, to a very interesting house, that in which was born and lived the celebrated Abbé de l'Épée, whose successful efforts to help the poor deaf and dumb out of the miserable neglect and ignorance into which at that time they had been allowed to fall, merit the everlasting praise of humanity.

Up to the time of this disinterested man, little or no progress had been made in the instruction of these poor unfortunates, who were treated much as mad people were then, and alas! till quite lately, —in the most improper and inhuman manner. The Abbé, who in his youth adhered to Jansenist doctrines, soon found himself without employment, and it is to this fact that we owe the present advanced state of the treatment of the deaf and dumb. Chance threw into his way two sisters, twins, both deaf and dumb, who had been under the care of one Vanin, a priest of the *Doctrinne Chrétienne*, but, dying, he left the two unfortunates scarcely any further advanced than ever. It was now that the Abbé de l'Épée came to their rescue, and soon devised a code of signals that put him and his pupils in complete communication with each other. His method differed essentially from any used up to that period. Till then all the efforts had been made to endeavour to make the pupil *speak*, but De l'Épée seeing the futility of this, devised a code of signals, and this means of communication has since been entirely adopted. But, like many good and virtuous men, his merits were not recognised till after his death, and it was not till 1791 that the *Assemblée Constituante* founded the *Institution nationale des Sourds-muets*, and acknowledged at last that the Abbé was deserving of his country's gratitude. Unfortunately, his compatriots were the last to recognise his talent, as the Emperor Joseph had held much communication with him, and indeed quite early in his career, an Austrian priest had been sent from Vienna, who carried back all that the Abbé had then in his power to impart.

It has been asserted by some that the Abbé was not the first to interest himself deeply in the fate of the deaf and dumb; it is true, for many years before De l'Épée, attempts to educate the deaf and dumb had been made by different men in different parts of the world, but all these had ended in nothing, and it remained to the humble inhabitant of the Rue des Moulins to gift the world with a language which has enabled many an intelligent mind to speak through the supple means of the fingers.

Between these early but earnest beginnings of De l'Épée, and the modern progress we have made, as exemplified by Dr. Howe's perfectly successful education of Laura Bridgman, who possesses but one sense, that of touch,* and the institutions for the education of the deaf and dumb, established in every civilised country, what a difference! and how would the old Abbé look with interest and pride on a work, in the perfection of which he played so important a part?

Having thus remarked the house where this devoted man was born, let us hasten on, along the Rue des Moulins, till we get to the Rue l'Évêque, which derives its name probably from its having been built on the property of the Bishop of Paris; the street, however, existed as a road before the levelling of the *butte*, in 1667,

* We refer those readers who desire to go further into this interesting case of Laura Bridgman to the pages of Dickens's "American Notes," where a lengthy and exhaustive account will be found of the method employed in her instruction.

when most of the other streets were laid out, for we find it mentioned in several documents in the archives of the Archbishopric, at the commencement of the reign of Louis XIII. (1610-1643).

Continuing down this street, we get into the Rue de l'Échelle, and now see before us the Rue St. Honoré; on the left, in the *Place du Théâtre Français*, and here again this end of the Avenue de l'Opéra is finished, showing the line it will take when the houses are all down. If we go a little along the Rue de l'Échelle, which by-the-bye takes its name from the fact that in the days of the bishop's rule over this part, there was here a gibbet (*échelle patibulaire*), we shall soon come to a spot which recalls to us a portion of history not so very remote from the present day. We all recollect the accounts of the flight of Louis XVI. on the night of June 20th, 1792, which ended in the fatal capture at Varennes. Well, at the corner of this same Rue de l'Échelle, when, as it then did, it led into the *Place du Petit Carrousel*, waited the carriage that was to convey the unfortunate fugitives from Paris. The first to arrive at the appointed spot were the two children, Louis (the unhappy Louis XVII.), and his sister (afterwards the Duchess of Angoulême) with their governess, Mme. de Tourzelles; then came Mme. Elizabeth, and her equerry M. de St. Pardoux, followed by the king and a body guard. For more than an hour they awaited the queen, who, accompanied by M. de Tersen, had missed her way, and short though the distance was from the palace (the *Tuileries*) to the appointed spot, they had crossed by mistake the Pont Royal, and had gone some way along the Rue du Bac, before the error was discovered. The rest of this ill-fated flight the world knows.

We have, however, in thus going down to the corner of the Rue de l'Échelle left behind us some interesting streets.

The Rue St. Anne, which existed some while before the levelling of the *butte*, was named in honour of Anne of Austria, the wife of Louis XIII., and we find that as early as 1622 it was closed for three years in order that by the deposit of gravel and other matters it might be made of the same height as the other parts of the *butte*, the ancient level of which, by-the-bye, the present garden of the Palais Royal still preserves. It was at the entrance to this Rue St. Anne that from the year 1528 there was a pig-market, which Jaillet tells us, writing in 1782, still existed in 1609. This was afterwards turned into a horse-market, which stood on the spot now occupied by the *Théâtre Italien*.

In going down this street it is not long before we come on the right-hand side to the Rue du Clos-Georgien, which derived its name, as appears from the archives of the Archbishopric, from the fact that it was built on the ground belonging to a private individual of this name. Let us go down this street, for it leads us to a famous spot,—the Rue Molière, otherwise named Rue de la Fontaine Molière, from the fact that at its junction with the Rue Richelieu stands the well-known fountain that bears the name of the great playwright. Just opposite, stands the house, No. 34, where he died, easily recognised by the black marble tablet, informing the reader that here in 1673 died the celebrated dramatist.

But we have not to deal with this street, it is out of the line of the Avenue de l'Opéra; so let us return to the Rue Molière. The street carries the reader back far beyond the time of the "Grand Monarque," to the period, in fact, when Joan of Arc lived and suffered.

After Charles VII.'s triumphant coronation at Rheims, in the presence of La Pucelle, his army advanced on Paris, then in the hands of the English, who held it, it will be remembered, no less than sixteen years (1420-1436). On the approach of the French, the English army had carefully protected the capital; but, however, assault was made, in which Joan was wounded and thrown from her horse, and, had it not been for the valour of the Comte d'Alençon, La Pucelle would have died in the *fosse*, which the old Rue Traversière (successively called Rue Traveraine, Bâton Royal), and now the Rue Molière, marks. Many visitors to Paris may have observed the clever statue of the heroine, by M. Fremiet, recently erected in the *Place des Pyramides*, opposite the *Tuileries*, in the Rue de Rivoli, which, far though it is from the spot where she is reported to have fallen, is yet intended as a memorial of her association with the neighbourhood. We must recollect that, since those days, Paris, though in a less degree than other great cities, has considerably increased in size, and

though the spot we have spoken of is two miles and more from the present fortifications, it was then on the line of the ramparts. The repulse that the French thus received was the first revenge the English had had for the defeat at Orleans, and Charles was obliged to retire with his army, and not long after, as we all know, poor Joan fell into the hands of her enemies.

But, gentle reader, we have not yet come to the end of our journey together. In leading you thus to the end of our route, we have left on one side probably,—nay, certainly,—the most interesting part of the whole. We will now retrace our steps for a minute or so up that queer little street on our right-hand side, with its ramshackle and dirty old houses, showing, evidently, remains of a day long gone by. Approach the spot with reverence, for when you turn the corner, you stand before the house where lived and died the immortal Pierre Corneille (1606—1684). Yes, here in the Rue d'Argenteuil, at that number 18, lived that master spirit. Before you enter, look up at the façade, and on it you will read an inscription,—“The great Corneille died in this house, the 1st of October, 1684. Erected in 1826.” But if you look in through the quaint old *porte cochère*, you will observe opposite you in the old court, a niche, and in the niche a bust, that of the immortal writer. Above, are simply the words, “The Old. 1636.” Below, those doubtful words of his, “Je ne dois qu'à moi-même toute ma renommée.”

In this house, then, lived Corneille, and here he wrote many of his finest works. Here, in the midst of the life of Paris, he moved in a circle of admiring friends, till at last death came, and, strange though it may seem, unfortunately, like many another man of genius, found him poor. A countryman of his, who relates the anecdote of him, tells us that but a few days before his death he was obliged to stop before the cobbler in his street to have his only pair of shoes mended. Poor in pocket thus, but rich in name, this great spirit passed away, and the works he left behind him have since served to enrich many a publisher and tragedian, though in their day they had put so little into the pocket of their great author. His remains lie in the neighbouring church of St. Roch, which contains, in addition to these cherished reliques, the ashes of De l'Épée, and of the celebrated Lenôtre, whose skill made Versailles what it is, and who has left his stamp on so many parts of France and England. Nor must we forget that here also lie the remains of Pierre Maupertuis, the well-known astronomer (1698—1759), together with those of the court painter Mignard (1608—1668), whose portraits we all know so well. Many of our readers will probably recollect that anecdote told of him, when, after having taken Louis XIV.'s portrait no less than nine times, his Majesty presented himself for the tenth, “Mignard,” said he, “you find me considerably older, do you not?” “Sire,” replied the courtier, “I see but some few more victories on your head.” The reply at such a period was worth rewarding, and one and the same day saw Mignard enter the Academy as member, professor, rector, director, and chancellor.

Let us not forget, however, to mention also the elegant De la Garde Dechoulières, whose beauty, wit, and *esprit*, were celebrated in her time. In fact, she was the tenth muse of the period. But though so admired during her lifetime for the elegance with which all she attempted was done, her poems are unknown by us now. Her ashes repose near those of her friend, the immortal Corneille.

THE PARIS UNIVERSAL EXHIBITION OF 1878.

CHANGE OF THE PLAN.

THE Parisians seem determined to carry out, in 1878, the observation of the old antiquary, Sauval, who, writing in 1724, remarked that Paris being the most magnificent city in the world, ought to distinguish itself accordingly.

The happy arrangement of the interior garden, which so beautified the Paris Exhibition of 1867, is to be introduced into that of 1878, an important modification which changes the three departments of the centre, and diminishes the space devoted to the fine arts by about three acres of garden, which will be doubtless made a model of that taste which the Parisian horticulturalists are now carrying to such remarkable perfection. Notwithstanding this diminution of the interior space, 10,000 mètres (or 3,000 mètres more than in 1867) will be devoted to

the fine arts, while the breadth of the galleries will be more by 10 mètres than in that year.

The gates of the large trellis-work enclosure marked out for the Exhibition in the Champ de Mars were shut at mid-day on the 26th ult., and now one can see, in addition to the bands of workmen dotted about its surface, that the long flight of broad steps leading from the Trocadero down to the Quai de Passy are being rapidly demolished by a gang of about two hundred navvies, who are rapidly removing the heavy stones. At the bottom of these steps, on the level of the quay, considerable works of excavation are being made, with a view to carrying off the mass of water from the great cascade that is going to be constructed here with the rocks which served in the Exhibition of 1867, brought in that year from the forest of Fontainebleau. The roads which meet at the Pont d'Jéna are being considerably widened, and the difficulties of the levelling are being rapidly arranged. With a view to widening the bridge, the project of which will be discussed at a forthcoming meeting of the council of bridges and causeways, divers are daily to be seen actively at work sounding the bed of the river. These alterations already attract a large number of sight-seers, all of whom express their astonishment at the *grande affaire* they see progressing. It is just here that has to be arranged the principal terminus and point of departure of the cabs, omnibuses, and other vehicles which will bring and take away the thousands of visitors to the great show.

We have several times had occasion to mention the important works that are now in progress in Paris, all of which are undertaken to be finished for 1878, and the talk of preparations for that year is increasing daily. Already, several foreign Governments have laid before their respective Parliaments, projects for their worthy representation in Paris, and we are constantly hearing of some new wonder then to appear.

To-day, for instance, we see that a series of interesting experiments are now being made by the Government, with a telegraphic instrument due to M. Lenoir, the inventor of compressed air motive power. This apparatus, which will be one of the principal attractions of the section devoted to electricity in the Exhibition of 1878, reproduces instantaneously the writing of the person sending the telegram, who can thus, even at a distance, give his signature. This apparatus reproduces in addition, with great clearness we are assured, the most complicated drawings!

Since the organisation of the commission for the construction of the exhibition buildings, M. Krantz has received several hundred applications for spaces to erect drinking-canteens for the workmen; but he has wisely and humanely prohibited from being put up within his jurisdiction any such provocations to danger and crime, and he threatens the instant dismissal of any workman connected with the undertaking who is seen intoxicated on the works. Several hundred applications, as we have said, have been made for leave to supply wine, &c., and all have been refused. Even in France, with all their well-worn economical ways and provident habits, drink, drink, is the one undisguised, indecent, naked sin, and if M. Krantz, in addition to prohibiting drinking-booths on the works of the Exhibition buildings, succeeds in organising suitable places of refreshment and recreation for the workmen during the lengthy period that they are likely to be occupied, his efforts would perhaps supply the greatest practical service that international exhibitions have yet obtained for us.

LIVERPOOL CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION.

THE Exhibition of Sanitary Appliances was opened on Tuesday morning: we will hereafter refer to the proceedings. On Wednesday evening the president, the Marquis of Huntly, delivered his address in the Philharmonic Hall. We give some passages of it:—

The Social Science Congress may be said to have at once an ideal significance and a practical use. As regards the first, it is, as it were, the symbol of one of the most honourable and distinctive characteristics of our day, a better, more helpful, and hopeful state of feeling between all the orders and degrees of society. It indicates the desire of the upper to lift the

lower classes to a purer atmosphere and happier condition of life, and of the educated and prosperous to distribute throughout the community the mental and material wealth that only accumulates the more it is diffused. The time was when the state of feeling was very different. The Norman Castle rose to overawe a sullen and discontented peasantry, and the lord of the manor was not always scrupulous as to the persons from whom he levied black mail. The scholar, contemptuous of the unlettered herd, left it to its ignorance, and selfishly courted the Muses in his still retreat. But the enthusiasm of humanity is a more universal and potent spirit now than it was in those days. It has penetrated every section of the community, made each feel that the good or ill of the others is in a measure its own, and has raised a noble army of philanthropists, anxious to do battle with the evils that threaten to impede, if not arrest, and even turn back, our progress; and to create the good that will secure the continued prosperity, and ultimately the highest well-being, of our nation and people. In this Congress I see a section of this noble army met, not simply for drill, but for the creation of the enthusiasm, the spirit, and the loyalty to its cause which are ever among the most essential conditions of victory. Our meetings thus at once express and foster one of the noblest feelings that can animate the heart of man, the feeling that he ought to contribute his share towards promoting the welfare of his fellows, and that his doing so will help, in however small a degree, to increase the prosperity and happiness of mankind.

Of the practical utility of these congresses there can be no question. For one thing they bring the worker in the cause of social reform, and the student of social science, face to face, and each can aid, instruct, and inspire the other. The worker can here supply the thinker with facts suggestive of new, or corrective of old, schemes of social reform and improvement, while the thinker may give a fresh impulse, or a new application and meaning, to the methods and measures of the worker. The practical man without the theorist tends to become too limited in his aims and endeavours; the theorist without the practical man tends to become visionary, to build castles in the air, to dream dreams that can never be realised. For the questions affecting society cannot be wisely discussed and settled by the abstract methods proper to the pure theorist, while they are too vital and wide-reaching to be left to the too often isolated and off-hand schemes of the practical worker. But here in our Congress the two can meet, qualify, and encourage each other, and, like twin stars, so mingle their distinct yet harmonious lights as to make the progress of society, if no less toilsome, more bright and sure. For another thing these congresses are useful in asserting the importance of social questions, in securing their discussion by well-informed and deeply-interested men, and in keeping before the country the constant need of social reform and progress. Politicians may be left to look after politics, but the questions here discussed are the peculiar property of no class or party, but the common concern of all. Society never stands still. Change is busy everywhere, and never allows to-morrow to be an echo of to-day. As Mr. Herbert Spencer says,—“Societies acquire increased complexity along with increasing size; show traces of structures and functions not before possible; and give origin to new institutions, new activities, new ideas, sentiments, and habits.” These new things are not of necessity good; accident can hardly be trusted to shape either them or their issues. The social unit and the social organism are most intimately related. No good or evil can happen to the one without affecting the other. And so the great endeavour ought to be to have in every part the minimum of evil, that there may be in the whole the maximum of good. Our social machinery needs thus to be always examined and repaired, adjusted to the new conditions under which it must work; improved so as to fulfil every beneficent end with greater sweetness and less expenditure of energy. The increasing wealth of the country, for example, is an increasing danger. Political economists can as eloquently depict the evils as they can easily analyse the causes of poverty, but they do not always see and cannot always protect us against the evils of too suddenly

acquired wealth. To increase the wealth of a class without increasing its ability to use it, may be to inflict great evils, not only on the class itself, but on society as a whole.

You will not, of course, understand me to lament the growing wealth of the artisan and labouring classes. I rejoice at it, and hope that it may become ever greater. But what I do lament is that their wealth should increase without any corresponding increase in their ability and will to use it wisely. Were the working classes to use their better wages to secure better homes, better education for their children, higher and more refining amusements for themselves, then their better wages would be an unmixed good. But so long as more money means more drink, more self-indulgence, more selfish concern for the workman and cynical indifference to the culture of his mind and the interests of his offspring, then I am forced to regard it as an evil rather than a good. The day has, perhaps, passed when civilisation can be overthrown by barbarians. Neither Asia nor Africa can ever send forth hordes to conquer and waste Europe as the barbarians overthrew the Roman Empire. The order is now reversed; the savage fades away before the civilised people. But a civilisation may die of self-generated diseases. Within the social body disintegrative forces may slowly gather and actively work, and the social scientist ought to study how these may be neutralised and dissipated. He watches social phenomena as the meteorologist watches the weather guide, pointing its finger from a lofty tower, that he may know the quarter whence the dangerous storm threatens to come. And a storm foreseen may be a storm averted. "*Lucrantes ventos tempestatesque sonoras Imperio premit.*"

The subjects that occupy the Congress are of the most practically important sort, for they concern the prosperity and well-being of the people. We all feel with Burke that "the happiness or misery of multitudes can never be a thing indifferent." The conditions of happiness are of two kinds—moral and material: those that regard man as an intellectual and moral, and those that regard him as an industrial and physical being; and these are the very matters which we have met to consider. The two sections devoted to law and education are concerned with the moral and mental problems suggested by society as it now exists in contrast with society as it ought to be. The two sections devoted to health and trade are occupied with questions that concern our physical and industrial well-being. Without due attention to the subjects that fall under these general divisions we can never secure the sound mind in the sound body, which is the condition for the individual of a happy life, for the state of a contented and progressive existence. A great people ought to be able to create all the conditions of happiness, moral and material,—must do so that it may not only maintain but increase its greatness. Our social questions are in an eminent degree imperial questions. That is a good Government which regards and secures the good of the governed. We remember who said, "*Boni pastoris est tondere pecus non deglubere.*" But it is not enough that a shepherd shear his flock; he needs to lead it to fresh pastures, and supply it with the conditions necessary to vigorous life. Now the very reason of our existence as an Association is to help society and the State to see what are the conditions necessary to a vigorous and happy life, and how they can be realised. And the history of the past nineteen years proves that these congresses have not been held in vain. The legislation, and still more, the sentiment and opinion of the country, have on all questions we discuss greatly progressed and improved. Law, national and international, civil and criminal, has been modified, reformed, and amended. Honest and earnest attempts have been made to deal with the primary education both of England and Scotland. There have been many noble efforts to improve the sanitary state of our great cities, and both the local and imperial powers are becoming alive to the supreme importance of everything affecting the public health. Trade and economy have become better understood both by the Legislature and the people; and the questions which are only confused and obscured in the vision of the master or the workman can here be discussed in circumstances which make a rational solution possible.

The several sections, with their respective subjects, are without doubt closely related to each other. The section which deals with juris-

prudence and the amendment of the law is occupied with questions most intimately connected with our moral well-being. Law ever requires reform and improvement. The mind of society is always changing, progressively we hope, and the law needs to be brought into harmony with it. Burke, in one of his grandest speeches, said, "I would have the laws timed in unison with the manners of the times,—very dissonant are a gentle country and cruel laws; very dissonant that your reason is furious but your passions moderate, and that you are always equitable except in your courts of justice." The public mind is coming now to think the prevention a greater matter than the punishment of crime, to seek the reform of the offender as well as the punishment of the offence. And our criminal law ought to strive to become preventive and reformatory as well as punitive. Our civil laws, too, are in many ways capable of amelioration and reform. In feudal times, for example, the relations of the owner and occupier to each other and the soil were very different from what they are now. The owner was a feudal superior, receiving his rent not only in money or kind, but in service. His tenants were feudatories, men who held of him on condition of rendering such services as would enable him to serve his country and his king. But now the owner is becoming, more and more, simply a capitalist, with his capital invested in land, and he lets it on the principle of securing, if not the largest, the best and safest return for his money. The occupier is now a tenant who leases the land as a means of earning a livelihood, and, if possible, of making a fortune. The idea of feudal service has either completely died out, or only reappears in a very exhausted and depraved form at election times, when the farmer is expected to follow his landlord or his landlord's friend to the poll. The great interest of the owner now is to improve his land, enhance its value, and so make it a better and more desirable property. The great interest of the occupier is to increase the productivity of his land, to make it so produce as to repay as handsomely as possible both his expenditure and his labour. But these changed relations of owner and occupier to each other and the soil imply many other changes. The application of capital to the soil by both landlord and tenant, so as to increase its productive powers and consequent commercial value, is the great necessity of these times, and requires many changes in usage and laws that had a feudal origin. In ancient times, the great ambition of the baron was to maintain his power by maintaining his connexion with the land; and so the laws he made were intended to secure its continued and unbroken destination to his descendants. But as his land now represents so much capital (by wise expenditure and adequate care capable of indefinite increase) the old laws have lost their *raison d'être* and become in many ways either useless or mischievous. They so tie up the landlord's hands as to prevent an adequate outlay on his part, and so deny security to the tenant as to hinder a sufficient expenditure of means and labour on his; and thus prevent the growth of our real and agricultural wealth. Hence it is becoming more and more needful that the laws which check the application of capital to the land, and so retard its improvement, be gradually modified and eventually repealed. It is, however, gratifying to feel that under these altered circumstances there is not of any necessity any change in the personal feeling and relationship between the two classes most interested. The very reverse is, and should be, the case. The more the owner of the soil devotes attention to the practical improvement of the laws and customs under which the occupier is encouraged to pursue his work, the deeper will be the kindly feeling and earnest respect engendered on the one hand, and sympathetic relations on the other, which are the best evidences of the attachment still existing between them.

But the questions connected with education seem to me even more important in their bearings on our social well-being than those connected with jurisprudence and the amendment of law.

It is very important that instruction should be given to girls in domestic economy. Home is woman's natural sphere, and on her depends what the nature of the home is to be. And as I would seek to have boys fitted for the positions they are to fill, or the occupations in which they are to engage, so also I would have the girls trained in the knowledge of house-work and house-management,—cooking, sewing, darning, mending,—

everything, in short, which can fit them for making good wives and happy homes. To teach lessons of thrift, economy, and wise saving in household affairs, is one of the most salutary and useful things we can impart to those who are to be the future wives and mothers of the men of our country. And it is gratifying to find that some of our School Boards are directing their attention to this important subject. The evening schools which have been instituted in many towns are of the highest utility. There are many whose education has been neglected in youth, who had not the opportunities which are now so fully provided, or who failed to use what they had, who are desirous to repair and supply the deficiencies which they feel and lament. Everything should be done to establish and extend such schools. The more we can diffuse instruction, the fuller means of education we provide, the happier and the better we make men. Some people even in these days seem to think that education makes men dissatisfied and discontented. A little knowledge may be a dangerous thing, and a smattering of information may make some conceited. But the more and better furnished a man's mind is the larger sources of enjoyment lie open to him, the more will he be diverted from low pursuits, and the more will low tastes be crushed out, and low habits cease to hold power over him. A man is restless and discontented when he is ignorant, he yields to low cravings because higher faculties and powers have not been stirred within him, and higher aims set before him. Education will help him to rise to a better position in society, or even if he should not do that, it will fit him to perform better the duties of his state, it will make him a greater man with greater powers, and greater and nobler pleasures, and it will tend to fit him all the more for a loftier and more exalted state hereafter, for which all life and all work here are only the school and preparation.

It appeared to me that this subject of education was one very appropriate for the president of this Congress to touch upon at Liverpool. In a city of such magnitude, in the centre of a vast population, the truths of social science, and the many questions affecting our social life, can hardly be brought home to our thoughts and ideas without entering upon it. I believe that this city has a right to be proud of the arrangements made by its School Board for the education of the vast number of children within it; and when one considers the great position held by Liverpool among the towns of Great Britain, it is an agreeable duty for the president of this Congress to congratulate her and her people upon the success that has hitherto attended the efforts of her citizens, and the great progress that has been made, since last this Congress visited Liverpool, in carrying out improvements for the benefit of all classes of her inhabitants; and it is with our united hearty goodwill that we wish for continued prosperity to the Queen of the Mersey. The duties devolving on the citizens of a town so large, wealthy, and increasing, are many, various, and important. Fully to discharge these duties requires great self-denial, which, with Mr. Raskin, I believe to be "one of the noblest duties for the sake of posterity." The desire for the improvement of the social condition of all classes, the development of social science, should rank "among the publicly recognised motives of exertion." "Yet these are not the less our duties, nor is our part fitly sustained upon the earth, unless the range of our intended and deliberate usefulness includes not only the companions but the successors of our pilgrimage. God has lent us the earth for our life; it is a great entail. It belongs as much to those who come after us, and whose names are already written in the book of creation, as to us, and we have no right, by anything we do or neglect, to involve them in unnecessary penalties, or deprive them of benefits which it was in our power to bequeath." It is this grand sentiment of Mr. Raskin's which breathes the spirit and intention of this Congress, and fitly depicts the great scheme which we have in view. Assembled as we are in this city, herself a gigantic specimen of the march of improvement and the progress of social science, the position she has attained testifies to the truth of our principles, and stands forth a guarantee for the fulfilment of our ideas.

The sections got fully to work on Thursday morning. We print two of the papers read in the Art Department, and will in our next report the proceedings more systematically.

WHAT ARE THE BEST METHODS OF SECURING THE IMPROVEMENT OF STREET ARCHITECTURE, ESPECIALLY AS REGARDS ITS CONNEXION WITH PUBLIC BUILDINGS?

BY MR. WILLIAM H. WHITE.*

ANY attempt to suggest methods for improving street architecture must be preceded by a reference to some of its actual defects and the impediments to their removal. It is, therefore, necessary to seek the experience of some large city; and I propose to take London as an illustration, since it is the biggest yet to be found in the world. Its original position was perhaps no less the result of chance than its early distribution; and, as we are told that the capital of the ancient world was once a village of huts, which each man had built, after his own skill and fancy, upon ground chosen according to his strength or pleasure, so the commercial centre of the modern one may have begun existence in a similar fashion. Substantial edifices like a castle, a cathedral, and a palace, were connected by groups of wooden houses, planted at sometimes wide distances from each other. The spaces between them were eventually filled with other houses; and rough highways, in front and behind them, developed into streets of irregular alignment and tortuous course. The area of a city was limited by its external wall; and all over the country, communities lived within the boundaries of a fortress or the seclusion of the cloister. Outside such precincts there was plenty of waste land; and in the course of centuries, what with religious reform in one and political reform in another, a good deal of good property doubtless went a-begging. Beyond Temple-bar, on the way to Westminster, the Strand was once bordered with the houses and gardens of the nobility; and to the north and north-west, at no remote period, was open country studded with parks and villages. Thereon now stand the churches and public buildings, the houses and shops, which make up our actual metropolis. In London proper, north and north-west of the City boundary, the greater part of the soil belongs to nine members of the Upper House; that is to say, to three dukes, four marquises, and two earls. The traffic in this soil, from generation to generation, is a business of the most extensive and profitable character. Most of the houses now standing upon it have been built, not for the comfort or the wants of the tenants, but for the protection of these nine noblemen and their heirs. All round the circumference of the capital, owners of farms, waste lands, and petty estates have followed superior example,—have consecrated them to building purposes; and along hundreds of miles of roadway, thousands of houses constitute just sufficient security for the land which speculating freeholders have lent on lease. For the patrician owners of our London soil decline to sell; and, of course, they may do what they choose with their own. Moreover, they will often only lend on condition that you build according to their liking. The system has been described over and over again: The owner of the soil lends you, for a certain term of years, a slice or several slices of land, for which you undertake to pay him an annual rent; but the interest you possess in the house or houses, which you are compelled to build thereon, is only temporary, since at the end of the term you must surrender to the freeholder, not only the land you borrowed, but all that you have built upon it. Your policy, therefore, is to make as much as you can out of the property before you lose it; and your ground landlord is too much a man of business to care about the character of property which will not revert to him or his heir until—if you are commonly shrewd—it will be worn out.

This is the blot upon the soil of London, and, to a variable degree, upon that of other native cities. It is an effectual bar to improving street architecture. But there is worse behind; for the law of leasehold, born of speculation, supports speculators of all kinds; breeds usury; and a long series of practices, often nefarious and always immoral.†

The many ills, however, directly and indirectly afflicting leasehold tenure, are not encountered in the case of public buildings, which are necessarily built upon freehold sites; but opinions are everywhere divided concerning the manner in which they should be planted in a great city. The Classical spirit advocates open squares and rectangular approaches; entrance porticoes immediately opposite broad avenues; and long vistas, from which distant points of view may be obtained. While the ancient precedents of Athens and Rome never enjoin absolute regularity, or exact architectural counterparts, the Gothic spirit is strongly in favour of surprises. It would lead the puzzled spectator, through a labyrinth of houses, up to the very base of a great building, which, it is often maintained, should be seen, not as a whole, but in parts; and while the history of Mediæval cathedrals proves that, even at an early period, they were diversified and altered without reference to original plan or intentions, the remains of the Athenian Propylæa, and what is surmised of the Forum at Rome, serve to show that Greek and Roman cities were singularly varied, in their grouping and minor effects, without any strong oppositions of form or material. But the moderns, however divided in their appreciation of Antiquity and the Middle Ages, agree that, as the ruins of public buildings have been, in the past, often the sole records of remote and half-understood forms of civilisation, so, in the present, something of Imperial importance ought to be attached to them. They are tokens of what the Romans called "public magnificence"; and to build one used to be, even in England, and at no distant date, the coveted reward of learning and perseverance. But, of late years, or at least from the days of the Empress Catherine II. of Russia, it has been the fashion to offer them, in a manner more or less limited, to public tender, or, to refine the phrase, to public competition; and although, by some accident often accompanied with acknowledged injustice, successful buildings have resulted therefrom, those who have ventured into the highways and byways of the system probably agree with that Royal Academician who refuses to compete, because he thinks "competition one of the worst modes of obtaining good designs . . . bad for the employers, bad for the architects, and bad for art generally."* Even when the conduct of an architectural competition has been honourable to all concerned, it is only a pictorial triumph, the outcome of which is more often archaeology than architecture. Judges, even the most accomplished, see upon paper, in a happy arrangement of roofs and chimneys, of turrets and spires, something resembling those excellent buildings of Western Europe, each of which frequently marks the whole course of Mediæval story. They admire, and are convinced,—often unable to perceive, as a critic has well said, that it is one thing to admire the natural growth of the picturesque, but quite another thing to set to work deliberately to be picturesque, of "malice aforethought." The consequence is, that our cities are now adorned with public buildings—many of them extremely beautiful—which are clever representations of the amended work of centuries, scientifically reproduced in the space of a few years, or even a few months.

Nevertheless, it is often said that our public buildings are failures, on account of a want of knowledge in the British architect, and a want of taste in the British people. But taste is only culture,—the product of example and slow inheritance; and while, in this time of School Boards and social movement of all kinds, there is great hope for what ancient writers called the common people, their actual influence upon the arts is imperceptible either for good or ill. That the educated classes are devoid of taste is much less likely than that they are perplexed with the artistic confusion,—embarrassed with the riches, native and foreign, which are absolutely flung at them. For the modern architect has the whole past at his fingers' ends, and many of his patrons are as learned in archaeology as he himself. Indeed, if my Lord Salisbury,—in his zeal for the propagation of brotherly love between Hindû, Musalmán, and Christian,—were

to order the erection of a hundred domes upon the top of the India Office, and the conversion of all its chimneys into minarets, there are scores of honest and patriotic Englishmen, not only able, but willing to gratify him; and this facility prevents the natural development of our recovered building traditions.

Another impediment to the improvement of London street architecture arises from the general reluctance to acknowledge a radical change, which, during the course of this century, has taken place in the life and condition of the capital. A city, or at least the centre of it, is now merely a place where "men toil and accumulate; they go elsewhere to enjoy and expend." To continue, in Macaulay's words, "The chiefs of the mercantile interest are no longer citizens; they avoid, they almost contemn municipal honours." The heart of the metropolis, with rare and fast-decreasing exceptions, has become to the householder a place of business only, to be avoided at every possible opportunity. Neither common interests nor kindred associations exist among the different masses of men who hasten every morning to the centre to win bread; and, at night, take it away to share with wife and children at the circumference, or in suburban retreats. All that the majority of business men now require, in town itself, is a warehouse, a shop, or a suite of chambers. The houses, which were formerly occupied on the ground-floor as business premises, and as a family home above, remain; but, although the nature of the occupation is totally changed, no radical alteration has been made in the houses. The ground-floor is still a shop or a warehouse; the first-floor is let out in offices; the second and third floors are rented by small families and bachelors. The rickety wooden staircase, which, a generation ago, was the means of ascent from shop to sitting-room, from sitting-room to bedroom, has become a public one; and the street-door, originally private, is now a public entrance. The Legislature takes no cognisance of the fact—long recognised in other European capitals—that buildings in the heart of a metropolis are occupied in single floors—even in single rooms—and not in whole houses. Originally, when some of the large estates were laid out in squares and streets, the building plots were cut up into slices—some as narrow as 16 ft., but generally from 20 ft. to 25 ft. in width of street frontage,—and, at this moment, there are ground landlords, who, although you take on lease 50 ft. or 100 ft. frontage of their land, compel you to divide it with party-walls at a distance of 25 ft., more or less, from each other. But if you increase that distance to 50 ft., and spend the money thus saved in party-floors of brick or concrete, the house will be stronger and better, both internally and externally. Thereby, instead of two shops, there may be three; instead of four rooms on each floor, you can get six, almost as large; instead of two narrow private entrances, you will have a single comparatively broad one; and instead of two suicidal deal staircases, you may have a fire-resisting one of brick or concrete. By such an arrangement, the front wall need not seem to be miraculously supported upon a plate of glass, for the divisions between each shop will provide visible means of support; and the distribution of several window-openings, at each floor of the superstructure, will afford scope for artistic treatment.

But I doubt whether the time has arrived when we can safely talk about improvement in a purely artistic, or, perhaps, an æsthetic sense, more particularly while building remains in three-fourths of Central London in its present state. What that state is has been told, for the space of more than a generation, in the *Builder* newspaper. In spite of new streets, new railways, new public buildings, London is permeated with fallen neighbourhoods, slowly descending into what are called "slums." Although the evils, due to overcrowding, have slightly diminished; although sanitary precautions are now taken, and parochial authority exercises some control, the vast majority of the houses have not been improved; and I doubt whether the recent Act of Parliament relating to artisans' dwellings will affect polluted thoroughfares upon patrician estates. I know a slum, a property of much and increasing value, situated upon dual soil. It is a long, irregular, and narrow lane, out of which an archaeologist could extract a host of amusing reminiscences, and a painter many picturesque bits of form and colour. Not long ago, its sky-line was improved by the introduction of a small church with a gabled tower, containing a deep-sounding bell, which,

* Read at Social Science Congress, Liverpool.

† The *Quarterly Review* for April, 1872, described in just and indignant language the state of our London houses. It said:—"This leasehold tenure, with its gambling speculation, extensive and often fraudulent building agreements; its heavy law-costs, complicated mortgages, releases, re-mortgages, and second charges; its doubtful titles and dreary waste of title-deeds; the risks of forfeiture, and the shortening term, forbids prudent men of business to erect substantial, well-built houses."

It is a remarkable instance of the Chinese endurance of

Englishmen that the people of London have not unmanfully struck against the system. They have so small an interest in the houses that they might with proper independence and moderation urge the cessation by legislative means, if necessary, of a custom which is in every way so injurious to all."

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at orthodox intervals, summons the neighbourhood to prayer. Meanwhile, the numerous men, women, and children, who are huddled indiscriminately together in houses—each originally constructed for the special accommodation of a single family—scream, swear, fight; and, as the medley of strains reaches my ear, I often presume to think that had Charity, instead of giving sixty families a place in which to congregate on a Sunday, provided six of them with rooms in which to live decently every day in the week, there would be more satisfaction in Heaven. For the improvement of such neighbourhoods is a question of charity. You cannot pull down inhabited houses, especially in a slum, without incurring a dead loss; and, on the great estates and others, you must wait until the houses fall, at the expiration of their leases, into the ground-landlord's possession,—when, sometimes, he will cause the line of street-frontage to be set back; lend his land again at an increased rental; and frequently enjoin the re-erection of a similar description of house.

When the model upon which house architecture in London proper is still based, was new and almost original, many of the well-to-do inhabitants were accustomed to be carried in covered chairs, from one part of the town to another; and the convenience, in wet weather, of such a mode of transport is easy to understand. But, at the present hour, society has neither chairs nor chairmen in the obsolete sense of either term. To enter carriage or cab, it must traverse often an uncovered door-step and always the street pavement, even under heavy rain. The Parisian ladies are fortunate, for almost every house in the new quarters of Paris possesses an entrance lofty and wide enough to admit carriages to the foot of the staircase. In Paris, Turin, and other Continental cities, ladies can "shop," even in the worst weathers, under numerous public colonnades, passages, and arcades. In Milan, there has lately been erected a broad and extended "gallery," lined on either side with shops, and covered with a glass roof. Such places in England, from some exuberance of the national temperament, bear an ill reputation. In London, an arcade or a colonnade has been condemned by experienced moralists as a fashionable resort, whither, at certain hours, the more foolish of one sex go to stare at the more vicious of the other. Nevertheless, in a metropolis, where it rains, on an average, 157 days in the year, long and broad avenues, covered with glass, scientifically ventilated, and guarded by policemen—not by beadles—would render a wet day far less expensive than it is at present to a large number of Londoners.

Innovations, however, are not hastily accepted in England, especially if they come franked with a foreign recommendation. The Parisians, on the contrary, catch at novelties; and sometimes crown the edifice of even a constitution before the foundations are set. The recent rebuilding of Paris was successful, according to a well-known French architect and journalist, because it was sudden and grand; and it would not have been accomplished had it been timidly pursued. But our English characteristic is to be slow and sure,—inevitably slow and possibly sure; and we are not at all likely to imperil political or financial success for the sake of artistic triumphs. Yet, although there is much to avoid in the example of Paris, there is also a little to follow. The French capital, with all its faults, is still more perfect than many of the chief cities of more successful neighbours. If you inquire, you will find that it has long had an organised "Service of architecture," which has worked, and still works, very well. Although this Service has undergone some modification since the war and consequent revolution, there is still attached to each of the twenty *arrondissements* a qualified architect, under whose orders are surveyors, clerks-of-the-work, foremen, &c. Over all are now two inspectors-general, experienced professional men, who have to give opinions upon designs and estimates, and to visit national and municipal works in course of execution. They have also to prepare the programme, and sometimes preliminary sketches, of a suggested public building before any one is commissioned to design and carry it out. If you turn to Paris, you will find that the palaces, schools, monumental arches and statues, are kept in repair and cleanliness by a professional staff, regularly appointed to look after them; and, often, a new public building, even when entirely finished and occupied, remains under the fostering care of some of those who assisted in its design and construction.

Such a work as the Great Hall of the celebrated Palace of Justice has risen slowly under the personal supervision of M. Duc and his assistants, who have devoted themselves almost exclusively to it. The superintendence of that and similar buildings represents a hierarchy of talent,—even the clerk-of-the-works sometimes succeeding, at his master's death, to the post of architect, with whom in France, where there are no general contractors, rests the sole and entire responsibility of the whole work. There, his authority, especially in the case of a public building, is greater than in England, for his responsibility is greater and more defined. Like the builders of ancient Rome, the French architect, during the space of ten years after the completion of any building with the erection of which he has been entrusted, may be mulcted, in goods and person, for any defects of its construction or accidents arising therefrom.

The Parisians also practise two of the precepts of Hygieia. In that metropolis of Cloudland, which Dr. Richardson so vividly described last year, "There is not permitted to be one living-room underground"; nor is any house, he said, higher than 60 ft.; but he did not mention the width of the street. In Paris, the public buildings and private houses rest upon vaulted cellars, containing wood, coal, and wine; and although servants are lodged often, unhappily, in a roof, none are consigned, either by day or night, to below the level of the street. Nor can any house be built in Paris, as high as 60 ft. from pavement to cornice, unless it be situated in a street or a boulevard, 66 ft. wide or upwards. In a London alley, you may erect a tower of Babel by simply buying the right to do so, not from your neighbours, but from the leaseholders and rackrenters of the opposite or adjoining houses. The Law lays down certain rules regarding party-walls and projections; but it leaves you to fight out, as best you may, caprices of light and air, the height of your walls, and the slope of your roofs. In Paris, such things are legally determined according to position and the width of a street; but in existing London thoroughfares, however narrow, the question is a marketable one, ignored by the Law and settled by lawyers. Although Parliament has given the town a Metropolitan Buildings Act and a Local Management Act, the present state of London seems to show, either that they are wrongly interpreted, or that some of their clauses are both illogical and unfair. For instance, you may construct a shop-front in wood, and project from the face of a brick wall absurd mouldings and so-called ornaments in wood, but you may not put any constructional feature in that material upon, or against, or even with, the brick or stone face of the first-floor window. You may erect over the entrance of a theatre, a music-hall, or a billiard-saloon, every variety of illuminated or pictorial box; you may have any number of cornices, which, in fine weather, will collect dust, and, when it rains, precipitate diluted mud upon the heads of passing pedestrians; you may have lions and unicorns, if you know how to obtain them, peering over your shop-cornice or from an upper window; you may completely envelop the front of your house in a wooden or a canvas covering, which you can let for a term of years to that enterprising contractor who "doth give us bold advertisement"; and although I have never perceived that the habitual drinker is fastidious in his choice of native liquors, it is a national custom for the names of eminent brewers to be displayed at public-houses upon huge boards, which often hang, from uncertain fastenings, over the street pavement. But you may not build a projecting window, however constructionally perfect, nor may you erect even a stone balcony upon a stone support—such as those which adorn the houses of new Paris—in even a broad new thoroughfare of London.

Some of the inconsistencies and blunders which militate against metropolitan improvement may yet be remedied by strong social pressure. The noble and other owners of our London soil are enlightened enough not to depreciate the force of public opinion. Their omnipotence may be exercised for good as well as ill. Although to hamper the lease of land with clauses,* relating to the quality of work to be erected upon it, constitutes a restriction for which intending lessees would perhaps demand compensation in

* Clauses of such a nature are of course always introduced, but that they are neither scrupulously executed nor seriously enforced upon some of the great estates, need not be told to anyone who has the smallest acquaintance with the sort of shops and houses which are even now rising in Central London.

reduced ground-rent, land in Central London is so scarce that an owner may virtually dictate terms with those who desire to build upon it. When, therefore, he knows, from precedent and surrounding example, that a new house will be inhabited in separate stories, and by several groups of people, let him insist that it be constructed with party-floors and a fire-resisting staircase. Let him stipulate for the spread of a concrete covering over the whole surface of the site; for the employment of proper materials; for a scientific system of drainage; and, above all things, secure the right to see that all is executed according to stipulation. In such matters, the real inhabitants of a house have no voice; they take what they can find, and at a price which must allow sufficient profit, not only to defray the expenses of land and building, but too often also the exigencies of a rackrenter, a nominal householder, two or perhaps more leaseholders, and sometimes a few mortgagees. But although public opinion may induce great freeholders, through their own middlemen, to enforce good building upon their estates, no outside pressure, no exposure of fraud and long-standing abuses, will reform the law of leasehold. Only a Royal Commission could get evidence of the evils which attend it, and only an Act of Parliament remove them.

The question, therefore, must remain for the present, one of possible improvement, because Parliament will not be in a hurry to cleanse the Englishman's "castle" of its legalised impurities; and, as yet, it is more a social question than an artistic one. For many years to come it will depend very little upon the *entrados* of any form of arch, the *entasis* of a column, or the "clear-obscure" properties of a cornice. It is not a taste for art that England lacks, but a real and serious desire for order and harmony which is wanting. Perhaps the many powers, dominations, and parliaments, which govern London by piecemeal, may yet receive Imperial attention. Any scheme which would serve to control, in an artistic point of view, the Metropolitan Vestries and Boards, while it left them the exercise of their actual functions, would certainly be beneficial. When it is remembered that some ground landlords compel you to erect a certain form of house, and that others impose a particular description of façade in accordance with drawings prepared by their own surveyors, there surely ought to be some power to which an intending lessee could appeal—if he deemed it necessary—against the artistic decision of the lessor or ground landlord. Parochial judgment is perhaps not sufficiently developed for such a position; and, indeed, it is expecting too much of human nature to suppose that a nobleman, who owns the land of an entire parish, would hold in awe a Vestry and a staff of officers, composed of his own tenants and their dependents. Some central artistic authority is required, disinterested and powerful enough to say to speculators of every social grade:—You shall not make day and night hideous with gigantic advertisements and notice-boards; you shall not traverse streets, courts, and gardens, with murderous telegraphic wires; you shall not carry a railway viaduct between the Palace of Westminster and the Abbey; you shall not build one public office in an Assyrian style of architecture, and another in absolute imitation of an Egyptian temple, or a Druidical monument. Such knotty questions, and the proper answers to them, should form the regular business of a technical tribunal, to whose decisions Parliament might listen with respect, or perhaps interpose its many-headed wisdom only on extraordinary occasions. True, in the Act under which Northumberland-avenue has been made, there is already a clause stipulating that the designs of the house-fronts are to be submitted to the Council of the Royal Institute of British Architects; but there is nothing in it to compel the Metropolitan Board to do more than submit the designs,—nothing to compel them to accept any judgment thereon.

Nor is the artistic improvement of London entirely dependent upon improved judgment in architecture, for I hold it a satire upon human intelligence to plant rich and beautiful edifices amid the filth of London. When, this summer, the sun shone, as it rarely shines in England, it was ludicrous to see the cornices of St. Paul's, the arches of Somerset House, the grotesque projections of more modern buildings, trying to cast a shadow! There is a social parallel to such a home of perpetual dirt, as the British capital, under artistic manipulation. Take a sweep: although in his working garb he is physically unclean, he may be upright, muscular,

honest, in fact, manlike; but put him into purple and fine linen, and he becomes a caricature of that form which is said to be moulded in the image of its Maker. Yet, under equally unpropitious circumstances, has London been dressed in an Antique and a Mediæval costume; and as fresh materials for gables and windows are now being sought for in Holland, perhaps the hose and the scrubbing-brush, with which the Dutch keep their house-fronts clean, may also be imported into this country. There are, however, responsible people who argue that the filth, which festers day by day upon the whole surface of London and its buildings—which floats in the air, within, above, and around them—cannot be removed; that the normal condition of a large English city is to be dirty; and that, if London were washed in the morning, it would be dirty again at night. The inhabitants of the French province of Auvergne have been similarly libelled; but if that plea of the Vestry and District Board be worth anything at all, how comes it that the well-to-do, well-bred Londoner, who resides in London, is the cleanest and best-dressed man in Europe? It seems almost an insult to common-sense to urge that the external faces of buildings in a great city should be composed of materials that will wash.* We possess all kinds of granite more abundant, and machines for polishing it better, than are to be found in any other country, and we have the strongest tiles and majolica-ware in the world. Yet brick, which must irretrievably soil, and stone, which after the dirt has been scraped from it, must decay, are the principal, if not the only, facing materials of even our national monuments. At the same time, walls of polished granite would be marred, in their purpose and effect, unless the surrounding streets and houses were kept in proper order. London employs an army to make the town morally secure; another is required to keep it physically clean. Upon the frank admission of local neglect and individual abuse, more than upon flights of archaeology, hangs the immediate improvement of our streets. And if rich people or prosperous communities will only be satisfied with mere *building*,†—and refuse everything, except good, plain, honest *building*, during the few remaining years of this century,—it will then be possible, in the beginning of the next, for another generation to refine it, with equal patience, into true architecture.

SOME ACCOUNT OF THE ART-UNION OF LONDON: AN ART POPULARISER.

BY GEORGE GODWIN, F.R.S.†

THE history of the Art-Union of London is a very remarkable one; and the effects of the operations of this association have not yet been taken properly into consideration by writers on art. A brief account of the more salient points of that history will not be thought out of place in this Department, which has been established to discuss questions of art bearing upon educational and industrial development, and the best methods of cultivating taste in all ranks of the nation.

In 1837 it occurred to a few lovers of art in this country that something might be done to render a knowledge and appreciation of it more general than was then the case, and to raise the standard of taste; and it was thought that an Association, founded on the principle of the German Kunstvereine, might be successfully established,—money being subscribed in small amounts, to be afterwards distributed amongst the subscribers in larger sums for the provision and purchase of works of art. As a curious matter of fact, such an association in a small way, under the title of *Virtuosi of St. Luke*, was formed in London by Vandyck, revived by Sir Peter Lely, and continued in operation intermittently till 1743.

When the Art-Union of London was organised, a society with a similar aim had been started in Scotland, but the mode adopted in London differed from that of the Scotch Association and the German undertakings in one important par-

ticular, inasmuch that, while in those schemes the selection of works to be given as prizes was made by the governing body, it was determined to confide the selection of prizes to the prize-gainers themselves, as being a plan better calculated to attract subscribers, and as likely to assist in cultivating the power of observing and appreciating the qualities on which the comparative value of works of art depends. Not merely does the act of selection thrown upon an individual lead in his particular case to inquiry and comparison, which often prove a good first lesson, but every member who goes to an exhibition feels the possibility of being some day a prize-holder, and so examines works, and tries to understand why this or that may be better or worse than others, with the view of having to choose for himself hereafter the best picture obtainable.

Going back to the organisation of the Society,—a committee of seventeen was formed, of whom three are still members of the Council, and in the first year they raised with difficulty 489l., with which the prizeholders purchased thirteen works varying in price from 10l. to 100l. The amount of subscriptions went on doubling for several years until an income of about 12,000l. per annum was attained; and at this, more or less, it remained for some time. In 1875, however, it reached 18,926l., and the last yearly subscription was no less than 20,932l.

In its second year, the Society adopted the principle of setting apart a certain sum for the purpose of engraving a picture, so that each member might receive an impression of the plate, and thus have a direct and certain return for his outlay; knowing that by combination a work could be produced, of the market value, at least, of the subscription, and having a confident belief that, in thus bringing a systematic artistic influence to bear upon a vast number of persons, at regularly recurring periods, they were preparing the way for the advancement of art, even in its highest departments. For, if the history of the fine arts in past ages teaches plainly any one lesson, it surely is that those arts only will flourish truly and permanently where they are of home-growth, and have set themselves to illustrate the characteristic sentiments and feelings of the nation, thereby ceasing to minister merely to the luxuries of the favoured few, and becoming rather the perennial and increasing sources of enjoyment to the public at large. A comparatively small sum only could be spared on the first occasion for the engraving, and the committee commissioned Mr. William Giller to engrave a plate from the picture, "A Camaldolese Monk," painted by Mr. Simon, which had been selected as a prize in the preceding distribution. This was the beginning of that issue of annual plates which has been continued ever since, and which may be truly termed remarkable, including reproductions by the first British engravers, such as Doo, Stocks, Sharpe, Finden, Heath, Willmore, Joubert, Jeens, and others, of the works of the first British painters, notably Mulready, Webster, Turner, Maclise, Landseer, Callcott, Frith, Cooke, Stanfield, Armitage, Goodall, and others, the whole culminating in the two large plates by Stocks and Sharpe respectively of Maclise's magnificent wall-paintings in Westminster Palace, of "Wellington and Blücher meeting after Waterloo" and the "Death of Nelson."

These remarkable works each occupied five years in engraving,—and of each about 20,000 impressions have been distributed,—at a cost, including copyright, paper, and printing, of 7,800l. and 7,200l. respectively. Produced commercially, two guineas at least must have been charged for each print, but under the arrangements of the Art-Union each subscriber of a guinea received an impression, and a large sum in the aggregate still remained to be distributed in the shape of prizes. It is to be noted in reference to these and other plates lately produced for the Society, that in every case the last impression taken from the plate is, in all respects, equal to the first printed. This result could not have been attained but for Mr. Joubert's valuable discovery of the process of steel-facing, by which the copper-plate is coated with an infinitesimally thin layer of steel, which thoroughly protects from wear the surface of the copper, and is renewed from time to time before any perceptible decline occurs in the quality of the impressions.

Besides plates engraved in pure line (of which branch of art, it may be noted, in passing, the Art-Union is now the sole support, publishers all adopting the more rapid, but inferior, styles

of mezzotint or the dotted style, technically termed chalk engraving), the Society has produced some fine examples of chromolithography, such as "Choosing the Wedding-Gown," after Mulready, and "Bellagio," and "Wild Roses," after Birket Foster, besides volumes of the highest class of wood-engraving, by Jackson, the Dalziels, Linton, and others.

In the year 1841 the committee determined to endeavour to turn the attention of British artists to the production of compositions in pure outline, after the manner of Riepenhausen, and some later Germans, of which manner Flaxman was, up to that time, the sole representative in England, their object being to show the importance of that purity and correctness of drawing, and severe beauty of form, which, apart from colour, and all the effects of light and shade, exist in the compositions on the fictile vases of the ancients, and in the outlines of the artists above-named.

As the result of an offer of a premium of 60l. for a series of designs in furtherance of the object proposed, thirty sets of drawings, of various degrees of merit, were received, and the premium was adjudged to one illustrative of Bunyan's "Pilgrim's Progress," which was found to be by Mr. H. C. Selous. The engraving of these outlines was very satisfactorily executed by Mr. Henry Moses, and copies were distributed to all the subscribers of the year 1844. Four other sets of engravings, in a similar style, have since been produced by the Art-Union. Amongst those who have received premiums for such works may be named Mr. F. R. Pickersgill, Mr. John Tenniel, and Sir Noel Paton. Of large and small prints, or sets of prints, of various kinds, the Society has distributed upwards of 500,000. Through the agencies, which have been established in all parts of the world wherever English-speaking people are to be found, from Jutland to the Cape of Good Hope, from San Francisco to Japan, there are to be seen, as cherished ornaments on the walls, the productions of the Art-Union, furnishing constant sources of enjoyment, telling some story of England's valour or loyalty, or clothing in lasting and impressive forms the poetical imagery of some English author; or, what is perhaps most of all appreciated in those distant lands, shadowing forth some scene of English rustic life, thus always and everywhere keeping up that memory and love of home which prevail nowhere more ardently than in the hearts of our countrymen scattered over distant parts of the world.

Besides the annual prints, the Art Union has distributed, as prizes, between 6,000 and 7,000 works in oil or water colour, a large number of which has been sent to Australia and other colonies. There are artists now high in the ranks who willingly admit the important assistance afforded them early in their career by the purchase of their works by members of the Society. In respect of sculpture, premiums have been offered at various times for important works, and which were obtained by Mr. Calder Marshall, R.A., Mr. Birch, and others. An endeavour has been made, too, and with some success, to encourage the art of cameo-cutting.

Up to the year 1841 it was a most rare thing to see in this country statuettes in bronze, such being found only in the collections of wealthy connoisseurs, and comprising real, or supposed, antique examples, and copies of fine works produced in France or Germany. Of English specimens of this work it is believed that none existed. The Art-Union determined to endeavour to bring about the production of artistic statuettes in bronze, but so little was known of the art of bronze-casting in general, that Mr. Edward Wyon, to whom was entrusted the reduction and casting of the Society's first work, the well-known "Michael and Satan" of Flaxman, had the greatest difficulty in finding men able to undertake the task. However, by dint of perseverance, a very satisfactory copy in bronze of the above group was produced, and this was the inauguration of a series of twenty bronzes, from works by Foley, Westmacott, Chantrey, Thornycroft, Stephens, Armistead, and others, to which the Art-Union may point with satisfaction, as not yielding in excellence to the works produced by any foreign foundry.

In ceramic ware, again, at the period above alluded to, very rare examples were to be found in England, generally consisting of a few specimens of old Chelsea or Wedgwood ware or works in biscuit of foreign origin.

In the year 1845 the Art-Union entered into negotiations with Messrs. Copeland and Garrett with a view to the production of statuettes in

* Some years ago Sir G. G. Scott, R.A., said he wanted "vitrified bricks without a glazed surface." He was sure that if proper attention were directed to the subject, good and permanent vitrified bricks could be produced at a reasonable price.

† Those people who are sincerely desirous of seeing the introduction of style (not a style) into new buildings, and propose to spend money upon pilasters and buttresses, should read carefully the "Introduction" (of forty-one pages) to the "History of Modern Architecture," by Mr. James Fergusson, D.C.L., F.R.S., and published by Mr. Murray.

‡ Read at the Liverpool Congress.

porcelain, and, as the result of a conversation between the writer and the late Mr. Gibson, a reduction of that eminent sculptor's beautiful statuette of "Narcissus" was placed in the hands of the above firm, and, after many failures, due to want of experience in that particular branch of manufacture, a very satisfactory result was obtained, and this was the beginning of that series of fourteen statuettes and busts which are among the most popular of the Society's productions. It may be mentioned incidentally that of the reduction in parian of the beautiful antique bust of "Clytie," more than 2,500 copies have been distributed. The Art-Union of London may thus claim the largest share of the credit of fostering a branch of industry to which thousands of households are now indebted for reproductions of beautiful works.

So, too, in respect of the art of medal die engraving, an art but little cultivated in England, the action of the Art-Union in producing the medallic series of British artists is similarly noticeable. The Art-Union, with a view to encouraging the practice of this art, proposed to produce a pair of dies for one medal, each year, having on the obverse the head of some distinguished painter, sculptor, or architect, and on the reverse a subject from one of his works. The first medal thus produced was one of Chantrey, the sculptor, having, on the reverse, his fine sitting figure of Watt, the engineer. The execution of this medal, thus commemorating, at once, two of England's most gifted men, was intrusted to the late William Wyon, R.A., and it was the first of twenty-six medals, to this time completed, which, as a whole, form one of the most interesting records ever produced, of men most distinguished in the field of art in England.

During the period of its forty years' existence, the Art-Union has had some difficulties to encounter; and two of the most serious of these arose from the action of the Government. In the year 1844, when everything was prepared for holding the usual meeting for the distribution of prizes, the committee were startled by the receipt of a letter from the Treasury, to the effect that the proceedings of the Art-Union were illegal, and that the continuance of the same would render all parties concerned liable to prosecution. The committee thereon suspended all proceedings; and, although they had the opinion of leading counsel, that their operations were not in any way in contravention of the Act against lotteries, they thought it better not to contest the point.

A memorial was addressed to Sir Robert Peel, setting forth the amount of benefit already conferred on the artists of the country by the Art-Union, and the great loss and disappointment which would arise from stopping the distribution of the large amount then actually in hand. The committee, were, however, unable to obtain any guarantee permitting them to make the distribution. At this juncture, through the introduction of the late Marquis of Northampton, one of the vice-presidents of the Society, the committee had a conference with the late Lord Monteagle, and pointed out to him the difficulties of their position. Suffice it to say, that a temporary Act of Parliament was passed, to enable the distribution of prizes to take place, and this was carried out.

In the meantime, a large meeting of artists was held, numerous petitions were presented to the House of Commons, and, on the motion of Mr. Wyse, a committee of the House was appointed "to consider the whole question of Art-Unions, and what are the most expedient and practicable means to place them on a safe and permanent basis, and to render them most subservient to the improvement and diffusion of art through the different classes of the community." The report of the committee was a complete investigation of all the points which could be urged for and against Art-Unions, some of the leading painters, engravers, and print-sellers of the day having been examined, and the conclusions were thorough and unanswerable in favour of the principles of the Art-Union of London.

A Bill, founded on the report of the committee, legalising art-unions, under certain conditions, was carried through Parliament, and on August 13th, 1846, received the Royal assent. On December 1st of the same year the Art-Union of London was incorporated by Royal charter. Under the provisions of this charter and of the bye-laws which, in accordance with its terms, the council drew up, the proceedings of the Society have ever since been conducted.

In the year 1866 it was felt by many persons

taking an interest in the advancement of art, and by none more strongly than by the council of the Art-Union, that in the Act above named the conditions on which such associations might be permitted to be formed were too lax, and that sufficient power was not vested in the Board of Trade, or in some department of the State, to prevent the fraudulent proceedings which were known to be carried on under the assumed title of art-unions. Lord Robert Montague procured the appointment of a committee of the House of Commons to investigate the matter. Ten witnesses were examined, and a report was laid before the House, recommending that the administration and enforcement of the Art-Union Laws should be placed under the charge of the Science and Art Department of the Privy Council, and proposing a code of regulations, which were in nearly all respects identical with the regulations of the Art-Union of London. Unfortunately, in consequence of the pressure of business in the House of Commons, the matter went no further than the presentation of the report, and an Act based on its recommendations is still a desideratum.

In the year 1848 the Privy Council sought to interfere with the constitution of the Society in three several particulars, viz., that the works of art to be given as prizes should be selected by a committee instead of the prizeholders themselves; that the annual issue of a print from some picture by an English artist should be discontinued; and that 10 per cent. of the amounts subscribed each year should be reserved for the purchase of works, not for distribution, but for public exhibition.

A consideration of the principles which guided the founders of the Art-Union in laying down the rules for its conduct, as described in the opening of this paper, will make it evident that the council could not fail in offering a strenuous opposition to the proposed alterations; being convinced that a measure which would have the effect of depriving the members of the certainty of receiving in return for the subscription, a work of at least adequate value, and, in the event of gaining a prize, would take from them the valued privilege of choosing a work of art for themselves, would, without any doubt, imperil the very existence of the Association. The proposal to mulct the annual receipts in a tenth part of their amount would be certainly unpopular, and would considerably trench on the sum disposable for a specific purpose, without bringing any compensating advantage.

A long correspondence with the Board of Trade ensued; a deputation waited on Mr. Labouchere, the president; a unanimous vote was passed at the annual meeting, requesting the Council "to persevere in their opposition to the proposal of Government"; a meeting of artists was called, and a memorial to the Board of Trade drawn up and presented, deprecating the proposed interference; and after more correspondence and further interviews, the Board of Trade forebore to urge their views "against the strongly expressed sentiments of the Council." Great as were the trouble and annoyance arising from these proceedings, they were not wholly without advantage, since they served to elicit from various quarters expressions of goodwill and appreciation very acceptable to those who had at heart the welfare of the Association.

The Art-Union has always been happy in the choice of its president. On its incorporation the office was accepted by the late Duke of Cambridge, and H.R. Highness, who always showed a warm interest in its proceedings, generally took the chair at the annual meeting, and was on one occasion a prizeholder.

The late Lord Monteagle, to whom the Society was indebted for most valuable aid at a critical moment, was then elected, and at his decease, Lord Houghton, who had been, as Mr. Monckton Milnes, a member of the Council, was elected president, and so continues.

Such is a brief sketch of the progress of the Art-Union. It has had its varied fortunes, but has steadily pursued its path of duty under circumstances at times very critical and difficult to meet. Its present position proves that it has triumphed over all.

To sum up in a few words, it has collected and distributed, with a view to the advancement of art and the spread of its enjoyments, half a million of money, not one sixpence of which would otherwise have been so applied: it has scattered fine works far and wide, and banded together English men and women throughout the world with one common object, and that a good one. I hope you will consider me entitled

to say that much has been accomplished towards the attainment of the objects proposed in the original programme of the Society,—the promotion of the knowledge and love of the fine arts, the general advancement of art in the British Empire, and the encouragement of its professors by creating an increased demand for their works and an improved taste on the part of the public.

WOOD WORKING AND STONE DRESSING MACHINES.

A FEW years ago we went over Messrs. A. Ransome & Co.'s factory (the Stanley Works, in the King's-road, Chelsea), and described what we saw, prophesying that the use of wood-working machines would extend, and that these works would grow. All this has come; and we went again the other day to

Stanley Works.—The factory, which was rebuilt on a greatly extended scale in 1873-4, is now capable of accommodating from 300 to 400 workmen, and is devoted exclusively to the manufacture of wood-working machinery of the highest class. The workshops, which are very light and lofty, are fitted with the most modern engineers' tools, and with every appliance for economising labour. A special feature in most of the machines made by Messrs. A. Ransome & Co. is that they are constructed to work at much greater speed than others of their respective kinds in the market, the result being that they not only do more work, but the increased velocity of the cutting-tools causes them to produce a finer surface than can be obtained with machines in which the cutters are driven at the ordinary speeds. To adapt the machines to work at such high speeds without undue wear it has been found necessary, in many instances, to make the cutter spindles of the best quality of steel instead of wrought iron, and to employ phosphor bronze, instead of gun-metal bearings, which naturally increases the cost of manufacture; but the slight extra outlay in first cost which this entails is more than covered by the extra earnings of the machine in the first few months' working.

The success of this system was strikingly shown at the Vienna International Exhibition in 1873 (the last occasion on which all the principal makers of wood-working machinery exhibited in competition), when Messrs. Ransome & Co. were awarded two first-class Medals for Progress, and Mr. Ransome, at the close of the Exhibition, received the Decoration of the Order of Franz Josef, while the highest honour awarded to any of their English competitors was a single Medal for Merit. As a further instance of the success which has attended the introduction of these high-speed machines, we are told that the business of this firm has more than doubled within the last four years, and notwithstanding the general depression of trade which now prevails, they are employing nearly twice as many workmen as in the busy period of 1871-72.

The most interesting department at these works (to builders) is the trial shop, or show-room for machinery in motion, a building about 100 ft. long by 50 ft. wide, which serves the double purpose of a testing-room, in which all newly-invented machines are worked and perfected before being sent out, and a kind of permanent exhibition of joiners' machines, where the most novel labour-saving tools of this description may always be seen in operation. Intending purchasers are thus enabled to judge of the practical value of the various machines by seeing them actually at work. As an illustration of the value of this practical test we may mention that there are at present in the market about a dozen different machines of the class known as general or universal joiners, all of which are advertised by their various makers as capable of doing almost every operation connected with joiners' work, but as the prices of these machines range from 17l. up to 250l., it is clear that they must differ widely both in construction as well as in quality and quantity of work which they are capable of turning out, and therefore the only way to form a correct judgment of their comparative values is to see them in operation.

Besides a number of representative machines of the more familiar kind, such as circular and band saws, planing and moulding machines, saw-sharpening machines, &c., which are at present to be seen at work at the show-room, we noticed some of a more novel description, and as they possess certain features which have not hitherto appeared in any corresponding machines, we will briefly describe them.

A patent single deal frame, capable of sawing battens, deals, planks, or fitches, up to 12 in. wide and 4 in. thick, was doing excellent work when cutting a plank of 11 in. by 3 in. into seven boards, with a feed of 3 ft. a minute; and we afterwards saw the same machine working with three saws, with a feed of 4 ft. a minute. One of the improvements in this machine consists in the working parts being very light, the crank-shaft and swing frame being of steel, which enables it to be driven at 320 strokes a minute, without any perceptible vibration. It requires very little excavation or foundation, as it stands on a bed-plate which is fixed on a level with the floor; the only foundation being two blocks of concrete, with a space between them for sawdust.

Another important feature in this frame consists in the introduction of two feed rollers, to not one on each side of the deal, and as they are both driven, very strong feeding-power is obtained, and although the rollers are perfectly smooth, they feed the deal through without the slightest slip, even when the frame is working with its full complement of twelve saws. The frame is said to be capable of sawing 150 12-ft. deals, with an average of three cuts in each, in ten hours, which is a better result than is obtained by most double deal frames to be met with in ordinary saw-mills.

We next inspected a Ransome's "Patent Complete Joiner," and saw it perform the various operations of which the makers advertise it as capable. The fact that the operations of sawing and planing or moulding can be carried on entirely distinct from one another, is a good feature in this machine, as where sawing and planing are done with the same spindle, a great loss of time must necessarily result from both men being obliged to stop whenever either of them requires to adjust or change a cutter. One of the great points of superiority in this machine over others of the kind which we have seen consists in the planing and moulding arrangement being provided with four revolving cutter blocks, so that all sides of a moulding are worked at one operation. We watched the machine turning out excellent match boarding, planed on both sides, and grooved and tongued on the edges, at the rate of 12 ft. a minute, whereas with other machines of the General Joiner type, which are fitted with only one planing cutter, the same result could only have been obtained by passing the wood four times through the machine.

The tenoning arrangement attached to this joiner is very complete, as with it several pieces can be tenoned simultaneously, and double tenons can be formed and the shoulders scribed at one operation if desired. By a simple adjustment, almost instantaneously effected, the cutters are made to form tenons on the skew, or with shoulders of unequal length. The arrangement for cutting circular mouldings which is carried on at the sawing side of the machine is also very good, the work being quickly performed and the surface produced being very smooth. The machine works equally readily every description of wood, the work in every case being finished ready to put together.

The machine at present in the trial shop will saw up to 9 in. deep, and plane anything up to 9 in. by 3 in.; but the firm are making a larger size, which will saw anything up to 11 in. deep, and plane up to 11 in. wide.

The "Richards' Patent Mortising-machine," which we next inspected, works with marvellous rapidity, and forms four perfect joiners' mortises in a minute. The chisel, which makes 600 strokes a minute, is so constructed as to draw the chips as they are made, thus avoiding the necessity for driving them out after they leave the mortising-machine, an operation which, with ordinary machines, often takes as long as cutting the mortise. To show the perfect action of this machine, two $\frac{1}{2}$ -in. mortises were cut through a piece of 4-in. yellow deal while we looked on, with a partition left between them of barely $\frac{1}{8}$ in. thick, this frail division being left quite unbroken and of a perfectly uniform thickness throughout. By a simple arrangement the chisel is instantaneously reversed, and the machine is so constructed that although driven at the extraordinarily high speed above mentioned, it works without any apparent vibration. A boring apparatus is attached at the side in such a position that the auger is exactly in line with the mortising chisel; but this is only required for hard wood, at starting, or for mortises of over $\frac{1}{2}$ in. wide.

A new tenoning-machine, specially constructed to work with the mortising-machine last described, is fixed alongside it, and produces

single or double tenons, with or without scribed shoulders, with great precision. Although a small machine, it is of ample strength, as was proved by its cutting for us a large tenon in oak.

A trying-up machine, with sundry improvements, "trued up" in a very short time some rough pieces of deal on all four sides, with such accuracy that when any two sides of the two pieces were laid together they formed a perfectly true joint, through which no daylight could be seen. The machine has two rates of feed,—one for soft wood equal to 25 ft. a minute and the other for hard wood of 15 ft. a minute.

This machine is capable of truing up the whole of the stuff for fifty doors in nine hours, and when one considers the great amount of time and labour which is expended in any joiners' shop in truing up, framing, and reducing it to the required dimensions with the hand-plane, the vast economy this machine effects will readily be seen.

A large-sized panel-board planing-machine surfaced and thickened panels of pine, yellow deal, spruce wainscot, and mahogany of the full width (20 in.) which the machine will take in. These panels were fed through the machine at the rate of 12 ft. a minute, and the cutters, which are driven at a very high speed, gave them all a perfectly planed and smooth surface.

A "Shute's Patent Mitreing-machine," screwed to a bench, was exhibited; but this machine is already so well known as to need no description. It may, however, be interesting to our readers to know that this little tool was invented by a working joiner some four or five years ago, and its value has now become so recognised in the trade that Messrs. Ransome & Co. put in hand as many as 200 of them at a time.*

A fret-saw, of new design, and a small machine which is capable of making almost every part of a carriage or wagon wheel, were also exhibited in action.

Brunton's "Patent Grindstone Dresser," a novel and efficient arrangement, was shown at work, truing up a very hard Yorkshire gritstone.

It consists of a steel disc bevelled to a cutting edge on one side, and keyed to a pin which revolves freely in a socket attached to a cast-iron plate. This plate is made to slide upon the bed plate by turning a hand-wheel attached to a screw, and thus the cutting-tool is caused to traverse across the face of the stone. The cutting-disc is fixed at an angle to the stone, and being pressed against it, is caused to revolve with a speed on the cutting-edge exactly equal to that of the circumference of the stone. The cutting-edge of the disc thus rolling on the stone cuts it with incredible ease, and as it will take a cut of half an inch thick, and will traverse quite across an 8-in. stone in two minutes, the great saving which it effects will be readily understood. The wear on the cutter-disc is hardly perceptible, and it rarely requires sharpening.

The whole of the machinery in the trial shop is driven by one of Messrs. Ransome's new special economic saw-mill engines, the chief feature of which consists in the application of an improved governor, which directly controls the action of the expansion-slide, and by this means maintains the engine at a very regular speed, no matter how much its load may vary. The cylinder is steam-jacketed, and the outer casing is covered with felt, and lagged with strips of mahogany, to prevent radiation of heat. All the bearing parts of this engine are very large, and the diagrams which have been taken of it show that it is exceedingly economical with fuel. We were also shown several samples of casks of different kinds and sizes, which had been made by three sets of special machinery for this purpose, which the firm have lately been working in their trial shop, and which not only effect a great economy over hand-labour, but produce a very superior article to any hand-made casks of their respective kinds. After witnessing the trials of the machines above noticed, we visited

The Battersea Foundry, which is situated on the Thames, about five minutes' walk from the Stanley Works. These premises, which were erected about ten years since by Messrs. Robinson & Cottam, comprise, besides very fine iron and brass foundries, engineers', smiths', and pattern-makers' shops, and, including a wharf on the east of the foundry, occupy over three acres of ground. Messrs. Ransome & Co. purchased these works about a year since, and by their acquisition they are now enabled to manufacture every part of their machines from the raw material, and thus make sure that none but the best material is used in their construction.

* We are asked here to mention that Messrs. Ransome, having no travellers of their own, have made arrangements with Messrs. F. W. Reynolds & Co., wholesale ironmongers, of Southwark-street, London, to push the sale of Shute's Mitre-cutters.

At these works we witnessed an interesting trial of the Pulsometer pump,—a great novelty, and the newest pumping apparatus in which the direct action of the steam upon the liquid is used for its elevation. It is of an extremely simple and distinctive type, the salient features being the absence of any engine, and even of plungers and stuffing-boxes, the moving and wearing parts of the apparatus being only four or five in number, and these of the simplest character, thus reducing the chances of disarrangement to a minimum. The automatic action of the steam ball which controls the action of the pulsometer is a problem which demands a thorough and searching investigation before the theory of its action can be definitely explained. Many opinions have been hazarded as to the principles which govern its motion, but none have been accepted as conclusive. But whatever may be the theory, the practical working of the pulsometer, its simplicity, durability, and reliability, will commend it to the favourable notice of those who want a steam pump which can be slung anywhere on a chain or rope without levelling or foundation, which wants nothing but a steam pipe besides the ordinary suction and delivery pipes. It will pump sandy or gritty water without damage to its working parts, and may be left at work for days at a time without attention, to take care of itself. The pulsometer, originally an American invention, has recently undergone many improvements at the hands of the manufacturers, Messrs. Hodgkin, Neuhaus, & Co., principally in the direction of a reduction in the consumption of steam accomplished by the entire isolation of the two steam chambers and water-chamber, and in the renewability of the few wearing parts, which can now at a small cost be rapidly replaced.

Stone-dressing Machine.

We also inspected at the Battersea Foundry a novel stone-dressing machine, designed and patented by Mr. John Dickenson Brunton, C.E., and as the results arrived at were very striking, the following description of the trials we witnessed will interest our readers:—A slab of Pennant stone, from Monmouthshire, close-grained, and so hard that every stroke of a mason's chisel elicits a flame, was fixed on a travelling bed. Above this stone is a vertical spindle, having, at its lower extremity, a circular iron box, like a cheese. Below this box are circular cutters, not visible, however, when working, or hardly visible, by reason of the rapid rotation imparted to the spindle, box, and cutters alike.

As the stone travels onwards, an evenly-dressed surface appears of 8 in. broad, produced by the revolving cutters. The depth of the cut or chip taken off varies from $\frac{1}{2}$ in. to $\frac{3}{4}$ in., for the original surface of the stone is rough, as it came from the quarry. The stone is of considerable size, but four journeys of the bed, two one way and two the other, complete the dressing of the entire surface. Very remarkable, certainly, it will be said; but how fares it with the tools that have accomplished this remarkable work on so hard a stone? Hot and edgeless, surely. No, quite cool, and of the edge, only very little taken off. The tools evidently good for more work yet.

There are other points which the practical man will inquire into. What quality of surface is produced, and is the arris preserved? To this it may be replied,—the surface is very good, entirely unstained,—and of course perfectly true. The arris is sharp and unbroken.

To those inquiring minds who, not content with seeing or knowing that an extraordinary thing is done, wish to know how it is done, the following, by way of explanation, may be offered:—The revolving cutters have imparted to them a positive rotation, so regulated that their edges do not drag on the stone, but roll simply. It may be illustrated thus:—A locomotive, as is well known, compels the circular motion of its driving-wheels, and it is by virtue of the bite or hold of these wheels on the rails that the engine progresses, and draws the train after it. The wheels of the carriages, on the contrary, get their motion by virtue of their contact with the rails. Now, conceive that to the wheels of a carriage were given a compelled rotation, exactly such as they otherwise would get from the rails. We have then an arrangement precisely analogous to that adopted in this stone-dressing machine. If the cutters were allowed to derive their needful rotation from their contact with the stone, there would be a certain amount of drag, and consequent wear; and if the speed were great, this drag and wear would be so considerable as

to quickly destroy the edge of the tools. With a compulsory absolute motion this does not occur, and there follows this further advantage,—that any practicable speed may be employed; and, indeed, it is evident that the greater the speed, not only is the quantity of work done in a given time greater, but the tools suffer still less, and the stress on the machine is less also.

A piece of Greenmoor stone from Yorkshire was then operated on. It is close-grained, and one of the hardest of the Yorkshire stones, but not by many degrees so hard as the Welsh Penant. It was dressed in a few minutes from the rough quarry face. The surface produced was good enough for most building purposes. Going over it a second time, taking a smaller cut, a very good surface was produced; anything better could hardly be desired. Messrs. Ransome & Co. are now making for the patentees a machine on which will be mounted nine spindles. It will be capable of dressing three paving-stones side by side, or landings 9 ft. wide. The rate of travel of the stone under the machine will be 5 ft. per minute.

It will be seen that we found much to interest us in our visit to these factories.

COSTUMES AT THE CRYSTAL PALACE.

WHAT is called a "grand costume contest" has been the attraction of this week at the Sydenham Palace; in other words, prizes have been offered (by the "Costume Contest and Exhibition Association") for the best designs for ladies' and children's dresses, and the specimens offered in competition have been exhibited on stands ranged down the centre of the nave. Looking at the collection from an artistic point of view, there is a good deal that is pleasing. There is less of mere "fuzbuz" decoration than we have seen in some similar exhibitions; and there seems a decided taste just now for defining a costume by strongly-marked lines, generally light on a darker ground, which gives definite form, and is much more satisfactory than mere formless bunches of ribbons and frippery. Costume design may be effective in three principal ways,—by its lines, by its combination and contrast of colour, or by mere beauty of material. The latter, of course, is a much more common-place source of effect than the other two; but it has its value, and a great deal of the material to be noted in this collection, in which diaper patterns in two tints, or two shades of the same tint, are predominant, is so positively pleasing in texture and effect that it would be difficult thoroughly to spoil it. The ruby velvet and brocade silk of the dress called "Recherché" (97 in catalogue), form a most sumptuous combination, intensified by the broad band of lighter material which crosses the skirt obliquely. The tendency to oblique lines and one-sided design is tolerably marked in many of the costumes in which the lines are emphasised, and is to be commended as giving an easy sweep and *savoir-faire* more pleasing than a dull and symmetrical uniformity. This is well illustrated in the Duchess costume (72), next to the last-named, where a very pretty diaper forms the main ground of the skirt and a strongly-defined border in parallel lines of silver braid, sweeps round the left side of the skirt to lose itself in the train. This kind of "movement" effect in a dress may be overdone, no doubt; it is so, perhaps, in such a dress as the "Princess Victoria" ball costume (122), which has a completely spiral effect, and seems as if suggested by the lines which the present style of skirt naturally makes when its fair owner is whirling round in a waltz; the rotatory impression is so strong that one almost expects to see the dress spin round on its frame. It is piquant, but a room full of costumes in this style would sadly want repose.

The specimens are very numerous; we may mention a few which show a decidedly artistic effect. On Platform 1, the "Payche" visiting-dress, described as "black gros grain and Persian damask," gives a very rich effect of colour; and the "Enid" and "Elaine" costumes are effective while quiet and unpretentious; these are "robes de chambre." On Platform 2, the "Brunnhilde" visiting-dress, a rich dark brown, trimmed with gold braid so placed as to bring out both the lines of the figure, and what may be called the construction of the dress, is a very artistic effort; and the "Siren" rinking costume (too suggestive title!), a dark serge with broad scarlet braid, produces much effect with very simple means. On Platform 5, a morning dress (13) of dark French cashmere, with edgings

and tassels of oxidised braid, has its merits, as also a brown cashmere called "Robe de Triomphe"; but a fancy character dress of a Bulgarian lady is the centre point, and cuts out everything else in the place for brilliancy of effect in a slightly barbaric style: a close-fitting dark velvet body with gold embroidery, a skirt very light both in tone and texture, with a small cheek on it, and a bright red scarf fastened at the right side of the waist and drooping obliquely over the skirt and looped together by a string of pearls on the left side, form the points of this striking costume. Platform 6 contains some of the most really artistic dresses, of a slightly exotic taste. The "Ganges" visiting-dress has a body and upper skirt of rather dark cashmere, with a skirt of rich though subdued orange; the crimson bows as trimmings on the skirt we do not feel sure about, as a matter of colour, but the effect is exceedingly powerful and unusual. The "Geneviève" and "Madras" on the same platform are very good, the latter, a handsome silk and cashmere, has the old effect of "slashed" sleeves, with the richer material showing through. A simpler costume, called the "Bangalore," pleases us more than most things in the place; it is a particularly effective though by no means costly material (Matalesse cloth), in stripes marked by dots of colour, and with plain dark sleeves and collar: this is a kind of dress such a painter as Antonio More would have delighted in, and is one of the most really artistic in feeling that we noticed. A similar sort of merit belongs to the promenade dress, called poetically the "Zephyr," on Platform 7,—a simple dress of a grey material striped in two tones, and with a crimson neckerchief: this is one of the cheap class of dresses, but it shows real taste, and would tell capitally in a portrait. This platform contains the only bride's dress in the collection, which shows nothing new, only the ordinary type of white dress, with plenty of lace and flowers. Brides' dresses are very seldom really artistic; they seem to run in the same line of art as bridecake decorations; but a bridesmaid's dress near it (130) shows very pleasing and delicate combination of tints; and a dinner-dress, "The Marion," of maize silk, a very delicate warm buff (or one might say a "high" cream-colour), with crimson trimmings, is a good bit of colour. A pale-blue dress, with trimmings of a rich cashmere type, called "The Morn," shows a decided and not unpleasing novelty. On Platform 8 is a kind of novelty, too, in the Madame Baron dinner-dress, a combination of pale emerald green and very delicate pink silk; it has rather a washed-out effect. The "Muriel" evening dress, a nearly white (cream-tinted) grenadine, with a touch or two of black about it, is a costume the effect of which must depend a good deal on the wearer, but for a young and decidedly pretty girl nothing could be in more perfect taste. On Platform 9 the dark silk promenade costume, with a rich fringe (81), is very effective, and the fringe a capital bit of rich ornamental work, but we should say more suitable to a dinner-dress than a promenade dress. On Platform 13 the "Autumn Novelty" promenade dress owes its effect to the inherent beauty of the material rather than to anything in the design. A good dress is the "Osborne," a dark material, with fringe of oxidised braid six lines deep: a sort of treatment that always tells. Platform 14, occupied by a firm that has Australian connexions, shows some effective costumes, as the "Sydney" and "Adelaide," with a certain character of their own. Boys' dresses are in abundance, but none that seem to us particularly admirable; indeed, boys' dress at present has run into very ungainly fashions, and these are nearly all on the fashionable type.

The prizes appear to have been adjudged, as we have noticed before in similar exhibitions, from a costumier's point of view only. Scarcely any of those which attracted us as particularly artistic, and which show real taste and fancy in combination and effect, have been premiated, and some of the prize medals are awarded to what an artist would certainly consider among the poorest and least interesting costumes in the collection. Little real good will be done by these exhibitions in the promotion of artistic taste in dress as long as this is the case; as, of course, the prizes merely go to the dresses which conform most to the standard of fashion of the moment. Persons of artistic culture, unconnected with the trade, should have a voice in the awards: and we would especially point out that the object should be to encourage and promote artistic treatment and combination of materials of

average cost, and such as are within the reach of the majority of wearers. This seems to have been kept in view to some extent in limiting the cost of certain classes of dress to moderate sums; nor are the dresses generally at all extravagantly costly; but there seems a decided tendency to give the prizes to the most rich and expensive specimens, though, as we have already implied, these are not by any means in all cases the most effective or tasteful. The true success in dress is attained when a costume is original, characteristic, and harmonious in colour, without being obtrusive or looking like a milliner's advertisement; when it is, in short, at the same time effective and lady-like: a combination not very easy to realise.

PROPOSED NEW EDUCATIONAL BUILDINGS, NOTTINGHAM.

THE proposed outlay has been raised to 40,000*l.*, exclusive of furnishing and fittings, &c. Twenty-seven sets of competition designs have been sent in, and they are now being hung for adjudication. The committee, on the recommendation of the Borough Engineer, Mr. M. O. Tarbotton, have appointed Professor Clifton, F.R.S., of the Physical Laboratory, Oxford; Mr. Alfred Waterhouse, London; and Mr. W. M. Fawcett, M.A., architect, Cambridge, to report on the three best designs entitled to the three premiums. They will meet in a fortnight, and after the decision of the committee the drawings will be open to the inspection of the public.

THE NEW "KÜNSTLERHAUS" AT BUDA-PEST.

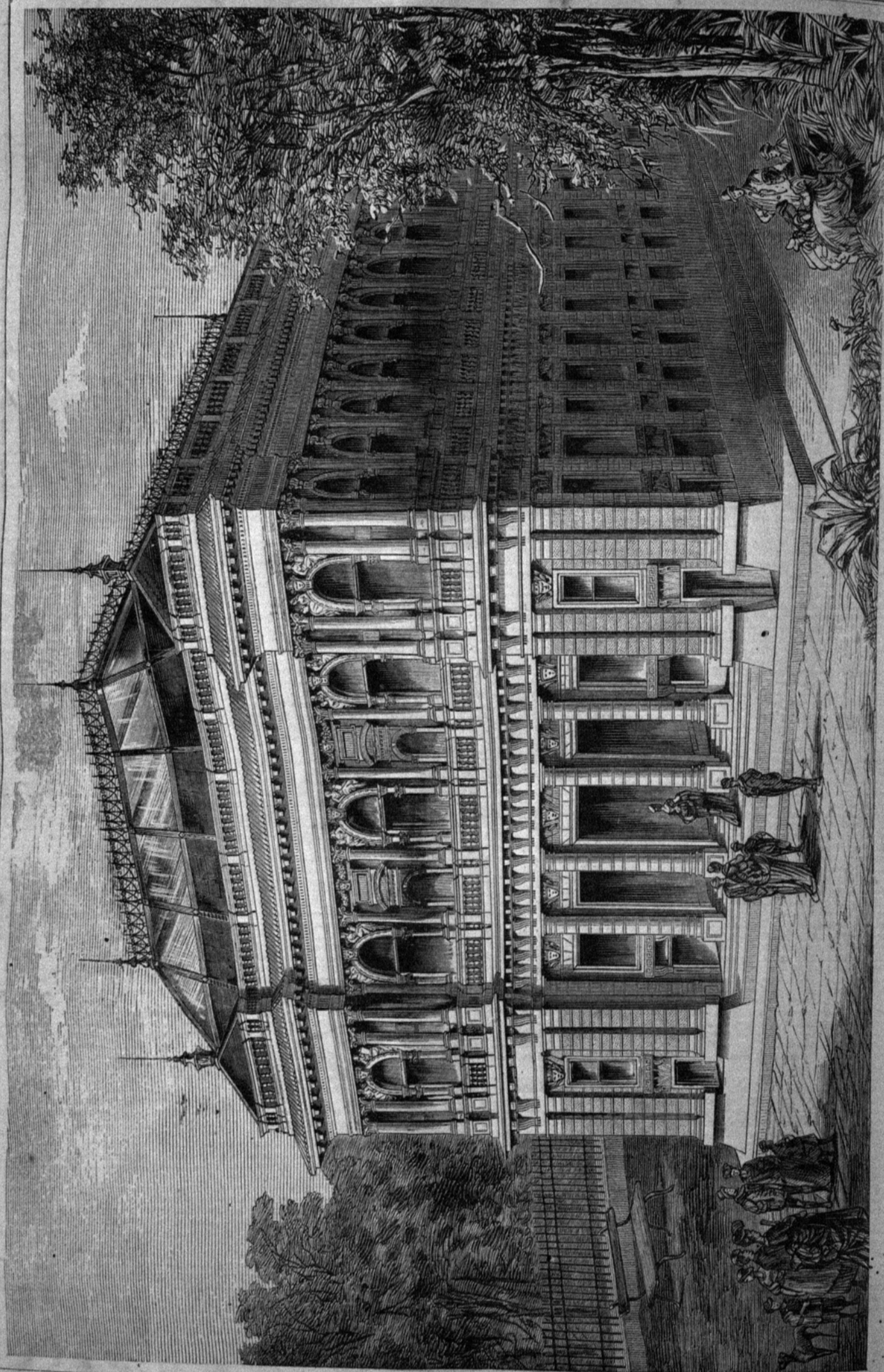
THE handsome "Künstlerhaus" (artists' hall or house), at Pest, the subject of illustration in this number, will, it is hoped, be opened in the course of this year. It was begun hardly a year ago, and, thanks to the liberality prompted by the national spirit, to which an appeal is never made in vain in Hungary, the new home of Magyar art will soon open its portals to the products of native artists.

The history of this building forms a worthy episode in the national movement which has already left to posterity such magnificent monuments as the National Theatre, the new National Academy, the Museum, and others. As before mentioned, the new building is to serve as a lasting home for the creations of native talent. Hungarian art, in accordance with the reawakening of national life, has received such an impulse within recent years that it has attracted attention and found encouragement far beyond the boundaries of its cradle. It is partly from want of a worthy home where it might be fostered that the most distinguished artists have had to seek purchasers of their works abroad. Markó, the landscape-painter, has found a second home in Italy; Michael Zichy, in Russia; Wagner and Benczúr are domiciled at Munich; Munkácsy at Paris; Paál, Mészöly, Böhm, and others, reside also abroad.

To put an end to such a state of things, the Hungarian Society of Arts fully resolved to undertake the erection of a centre of native art. A piece of ground was speedily secured in the new Radialstrasse, under very favourable conditions; the means for the building were partly contributed by private munificence, partly raised by a lottery of works of art gratuitously supplied by the public spirit of Hungarian artists. On competition being invited for plans, designs were sent in from all parts of Europe. Among the forty-four plans submitted, that of Adolf Lang, of Pest, was selected; the design of A. Halmay, of Arad, receiving the second premium, and that of E. v. Förster, of Vienna, the third.

The building is in the Italian Renaissance. The ground-floor and mezzanine story are to serve as a museum of industrial art, while room for storing the objects of art, and a lift for moving them, without injury, up and down, as well as the necessary offices for the housekeeper, have been provided in the basement story. On the first floor are the exhibition and lecture-rooms.

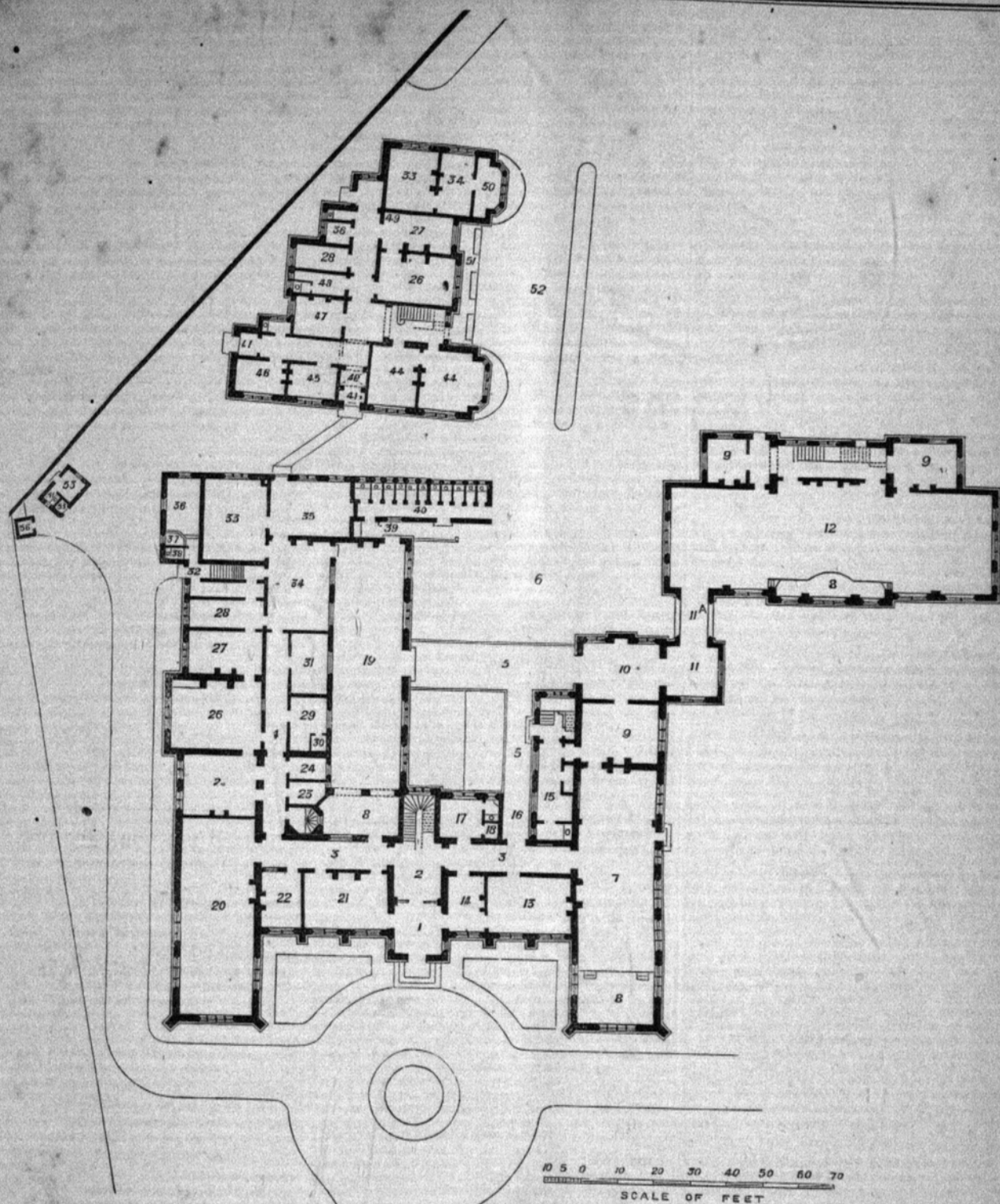
Indian Civil Engineers.—The *Morning Post* understands that the grievances of the civil engineers in India, which refer to status and pay in the service, are now under consideration at the India office, and are likely soon to be redressed.



THE ARTISTS' HALL, BUDA-PEST.—HEER ADOLF LANG, ARCHITECT.

THE ROYAL MASONIC INSTITUTION FOR GIRLS, WANDSWORTH COMMON.—SHOWING ADDITIONS NOW IN PROGRESS.





1. Hall.
2. Inner hall.
3. Corridor.
4. Passage to offices.
5. Proposed covered way.
6. Outer quadrangle.
7. School-room.
8. Dais.
9. Class-room.
10. Music-room.
11. Extension of music-room.
- 11a. Connecting lobby.
12. Large hall.
13. Committee-room.
14. Head governess's dining-room.

15. Day lavatory.
16. Lobby.
17. Committee's lavatory.
18. Iron safe.
19. Assembly-hall.
20. Dining-hall.
21. House dining-room.
22. Matron's sitting-room.
23. Matron's pantry.
24. Matron's stores.
25. Store-room and business-room.
26. Kitchen.
27. Scullery.
28. Pantry.

29. Boot-room.
30. Gas.
31. Box-room.
32. Tradesmen's entrance.
33. Wash-houses.
34. Drying-room.
35. Mangling-room.
36. Coals.
37. Coke.
38. Serrants.
39. Outer lobby.
40. Inner lobby of children's w.-cs.
41. Porch.
42. Vestibule.

43. Convalescent-room.
44. Doctor's room.
45. Porter's sitting-room.
46. Porter's bed-room.
47. Nurse's bed-room.
48. Lavatory.
49. Lift.
50. Ironing-room.
51. Verandah.
52. Infirmary-garden.
53. Tool-house.
54. Earth-closet.
55. Earth.
56. Dust.

THE ROYAL MASONIC INSTITUTION FOR GIRLS.—Plan.

THE ROYAL MASONIC INSTITUTION FOR GIRLS.

The Royal Masonic Institution for Girls, near Clapham Junction, on Wandsworth-common, was erected about twenty-five years ago, from the designs of Mr. Hardwick, to accommodate seventy children.

Of late years very extensive alterations and additions have been made, and the present

buildings now contain 155 children. A new wing is being erected on the north-east side, under the superintendence of Brother Masse, the surveyor to the Institution, to receive seventy more children. The chief corner-stone of this building, of which we give an illustration, was laid, on the 7th of September, by Lieut.-Colonel Creaton, one of the trustees, in the presence of the committees and officers of this Institution and the other Masonic charities.

The new wing contains on the ground-floor a large room, 90 ft. long, 31 ft. wide, and 21 ft. high, at the rear of which are class-rooms and a staircase leading to a mezzanine floor and gallery. Over the large hall are three dormitories, and over the class-rooms are bedrooms and lavatories.

The new building is connected with the old by an annex in connexion with the music-room and north-east dormitory.

AS TO THE INFLUENCE UPON SOCIETY OF DECORATIVE ART AND ART-WORKMANSHIP.

In view of what may be said on this subject at the Liverpool Congress, I shall be glad if you will allow me to make a few observations. It is a very curious fact—a most remarkable fact—that the English people have somehow or other got their art-problems inverted in their minds. They have by some means got possessed with the hazy notion that art makes civilisation, whereas it is the very reverse,—it is civilisation which produces art; art is the result of culture; art is the flower of which education is the very root and stalk. Art has very little power to teach, but is a faithful index of what has been taught. In Grecian art, in Italian art, and in Louis XIV. art, we shall find faithfully reflected what the Greeks, the Italians, and the French were taught. We have only to cite facts to show how little influence art—the highest art—has upon a people. For instance, Italy possessed intact, for nearly three centuries, those art-treasures which it took her about two centuries to produce, without their having the slightest power, either to arrest her own decadence, or the decadence of art. Italy is, in the fine arts, at this very day, behind other European nations. The same truths may be gathered from Grecian and Roman history, and from the history of art in Europe for the last century and a half. For has not Europe had the art-legacies of Greece and Italy during that period at her command, present to her, thrust upon her eyes in every direction; and yet, what is her art compared with that of the two great epochs? It is, therefore, evident that art is powerless to save civilisation, is powerless even to save art, and I will add that it is, in itself and by its own example, powerless to create a sound taste. If, then, the highest art exercises so little influence upon mankind, what are we to expect from ornamental art and art workmanship? If art made civilisation we should reasonably expect to find that the early ages of Greece and Italy were nurtured upon the finest works of art. Was that the case? Most assuredly not. On the contrary, we find that the early days of each great art-epoch were accompanied by rude art endeavour, and that art arrived at perfection only by persistent and earnest work through the centuries. Clearly, then, art was not the cause, but the effect of those two famous national developments. If art exercised a softening influence upon all conditions of men, we should, doubtless, have possessed ten times the legacy of antiquities we now have. But art was powerless to brow-beat and to subdue Goth and Vandal; these heard not the tender appeals for mercy which the cultured of these days are too apt to imagine art makes upon all. It was often ruthlessly destroyed. It was even powerless to arrest the destroying hand of the more educated Vandals of a later date. All have doubtless heard of and smiled at the French Princess who expressed surprise that the poor could by any possibility starve to death whilst there was an abundance of penny buns. And yet you often express a surprise, of a somewhat allied kind, that, “after all the benevolent efforts of art enthusiasts, and all that wonderful supply of ‘sweet things’ at a moderate price,” the poor public, in respect to taste, is still starving. But such is the state of things,—a state of things which will continue to be as long as we persist in a course diametrically opposed to that of Greece and Italy; as long as we persist in reversing the true order of things, and placing the cart before the horse. Refine the people by general education, and taste will, as a matter of course, fructify in due time. It is the refining power of education which produces that greater sensibility of organisation of which good taste is the result.

It is to the improvement of general education, to which we must at first address all our power, or at least our main power: we may then rest assured that art will be in a fair way of being taken care of. Then we shall have an art-loving people.

But let us for a moment suppose that the wildest dream of the enthusiast is at this very moment realised in Great Britain, and that no one in these realms, from this day forth, will have less than 400*l.* a year, payable quarterly, together with a house fitted up in the most approved style, from ceiling and chandelier, down to the fire-irons and the coal-skuttle. What influence do you suppose these tasteful homes

would have in this suddenly-realised Art Millennium upon the great masses of the people? My own opinion is, that within a month of that time two-thirds of these tasteful homes, in as far as their decorations and their art manufactures were concerned, would be total wrecks.

And let me ask you whether, all things considered, and as the poorest inhabitant of these realms has not 400*l.* a year, payable quarterly,—whether it is not better, under existing conditions, that they have not refined tastes? What keener pang is there to a man of culture, in reduced circumstances, than to feel that he is surrounded by those ungainly prospects which poverty almost invariably presents? There are thousands and tens of thousands in this kingdom whose lives would be a burden to them if they were unfortunate enough to possess refined tastes. We see, then, that there are several aspects of this question.

From the foregoing arguments, therefore, it is clear that something more than mere art examples and art schools are required to create a fine taste and fine art. It is through our blindness to this great truth that we are continually wasting our resources upon institutions which are inadequate to their purpose,—nay, worse than inadequate, because if the funds thus misapplied had been rightly utilised, they would have been productive of grand results. Again, I say it, we rely too much upon museums, art schools, galleries, &c. If we desire to develop good taste, let us educate. If we desire to have a grand national school of art, employ artists on great national works. These are the only two direct means for furthering the art-objects we have in view. This was the policy pursued in the two great eras of art. Music, though the youngest, is the most advanced of the arts of the present age, for this simple reason that it had to be created from the elements, and had not to labour under the shadow of ancient example. If you desire that a certain manufacture should be perfected, there must be a steady stimulus given to production, there must be a steady and constant demand. This law equally holds good in respect to art as it does to cotton yarns.

But there is yet another aspect of this question. The schoolmaster is abroad. Can any good be gained by bringing the youth of the country, during their school training, into the presence of the splendid remains of ancient art, with those splendid results of the highest culture? This is a question deserving thoughtful consideration. Would the presence of fine works of art in schools tend to facilitate the development of that refined sensibility at which true education aims? Out of this springs another question,—Would the youth so educated and perfected in taste be able in the aggregate to gratify that taste? Because, if not, you would run the risk of making them discontented with their lot, or, at all events, you would have to provide art-entertainment on a grand national scale.

The notion of furnishing schools with copies of the noblest productions of art is not a mere untried suggestion: it has been put to experiment in the United States, and I will give you the words of its promoter:—

“A few years since I suggested and ‘put through’ (as we say) a little experiment in art-culture, which may interest you. ‘We had adopted a system of free-hand drawing in our public schools. It seemed to me, however, that we needed something more, i.e. taste. How shall we develop that? It seemed to me that if our children were accustomed to see the very best forms and the very best colours in their school-rooms, their rapidly-growing brains would insensibly be affected by them in the course of time. The city of Boston were building a schoolhouse at the time,—a high school for 600 or 700 girls. We induced them to allow us to put the grand hall into what we considered an æsthetic condition. The room is some 70 ft. square by 15 ft. high. The Doric style was adopted; Doric pilasters support an entablature into which we placed the frieze of the Parthenon. Between the windows stand casts of the Caryatides of the British Museum, the Demosthenes, the Ludovigi Juno, the Diana of the Gabii, &c. The Minerva presides over the stage. The walls were carefully tinted. The casts for drawing are kept in another room; the whole effect of this room was to be indirect.”

Such, then, is the account of the experiment made in the United States, as given to me by its promoter. There is, however, one important point of view from which the prudence of this

experiment may be questioned. It is a question whether the constant presence of art is either favourable to taste or the advancement of art. Should not the contemplation of art rather be a holiday festival for the eyes, than a splendour ever present and blinding? I fancy this occasional art festival, this out-door presence of art, must have been very much the state of things with the masses, both in Greece and Italy. Have not the most of us felt that we become perfectly insensible to the presence of the pictures, prints, &c., with which we surround ourselves in our homes? Are we not often surprised into finding that we possess them? Do we not, therefore, hazard the bringing about of a state of indifference, a result the very opposite of what is desired, by the constant presentment of fine works of art to the eyes of children, or even of grown persons? My own leaning is towards a public art-magnificence, and a private and homely Spartan simplicity. I believe these conditions to be those most conducive to the love of art, and the encouragement of art. A Spartan and proportioned simplicity in the home is possible to the greatest number of the people, whereas decoration and art-manufactures can only be compassed by the few. Moreover, this proportioned plainness and love of simple order are the very first indications of the dawn of good taste, as an ostentatious display of decoration, heaps of art-workmanship, and an overcrowding of furniture, are too frequently the symptoms of the reverse. This simplicity, and plain, undecorated order, are what we might reasonably encourage the poorest to aim at, whereas we cannot, with any consistency and good taste, advise all classes to go in for decoration and art-manufactures.

The United States as well as the European nations are intent upon solving the same important art problems as we. And whichever of them first successfully accomplishes it, will take the lead in art and in art-manufactures. I hope, therefore, I shall be forgiven for being outspoken, though that may be against the general views, and those of the powers.

W. CAVE THOMAS.

“MODERN ENGLISH ARCHITECTURE.”*

THE real mistake at the root of modern architecture is the sentimental archæology which seems to have absolutely taken possession of it. Even the engineers (who in some ways stand more nearly than any other body of men, in the same position in regard to the present day as the Mediæval masons did to their own time) are bitten by this; and when they wish to make a structure “ornamental,” they have no idea but to dress it in some borrowed plumes of Classic or Mediæval architecture. The influence of sentiment has been exhibited in a still more curious manner in a recent great building, the Albert Hall. This, which is the design of engineers, is a rather remarkable building, and exhibits some of the characteristics of a work constructed on genuine architectural principles. The details are coarse and commonplace, for it seems impossible to beat into the head of an engineer that some training and education of the eye and the judgment is necessary for the production of suitable and refined ornamental detail; but plan, construction, and design form a united and interdependent whole, arising as they do in a strictly logical manner one out of the other. The unfortunate point is, that the plan is utterly wrong, to begin with, for the purpose of the building; and it is so entirely from the sentimental worship of precedent, which led the designer, instead of considering what was the best plan for the purpose, to start with the idea of reproducing the Roman amphitheatre, although a moment’s consideration ought to have rendered it evident, as a mere matter of ordinary common sense, that the plan of a building for seating people round a circumference to witness a spectacle in the centre, could by no possibility furnish the proper model for one in which they were to listen to music performed at one end of the building. But it is to such incongruities that people are led through forgetting that architecture is not (except in very rare instances) a pure art, governed by æsthetic or sentimental considerations; that it is the artistic or effective expression of practical requirements which must govern and form the basis of the whole. It is in further emphasising this condition of architecture that the possibility

* From a paper not entitled, in the October number of the *Fortnightly Review*, by Mr. H. H. Statham.

of making it a genuine intellectual pursuit, and not a mere toy, really consists.

After what has been said above about receipts, it will not be supposed that there is any intention here of offering another new and infallible one; but it is possible to point to modern examples in which this treatment of architectural effect on a practical basis has been so far realised as to indicate at least a direction in which the art may receive a new development. There is a large building at present in progress—the new town-hall in Manchester—the internal plan and arrangement of which affords an admirable instance of novel and picturesque effect, obtained simply as the natural result of the masterly and complete manner in which the very intricate internal economy of a great hive of multifarious departments is reduced to simplicity and order. The exterior of Mr. Waterhouse's building, it must be admitted, belongs to the sentimental school of architecture; it has no very close or necessary connexion with the internal plan; it is thought picturesque at present, and may or may not be thought so under future changes of taste; but the treatment of the interior will command admiration always, because its excellence is of a kind which is practical as well as picturesque, and is independent of mere changes in architectural fashion. The same sort of excellence, on a grander scale, is exemplified in the Houses of Parliament, which the designers of the Albert Hall will probably be surprised to be told is, in its main scheme, a much more practical, as well as more beautiful, piece of architecture than their building. It is so unquestionably; its plan is a most effective and yet perfectly simple and practical expression of the objects of the various parts of the building and their relation to one another, and all the principal features of the exterior design arise out of, and emphasize, the leading points of the plan. The "style" of the Houses of Parliament is an utter mistake; it was the deliberate selection for imitation of a bad and weak phase of late Mediæval architecture. But for this its architect was not responsible; and when a building fulfils the conditions of practical, and at the same time effective, grouping and construction, the details are of secondary consequence. The question of plan is more especially the basis of modern architecture on a large scale, because most large modern buildings are far more intricate in their purposes and requirements than was the case with ancient buildings, of which the larger ones were, as already observed, mostly temples, consisting principally of one great apartment, and presenting accordingly a far more simple and straightforward, and also a more purely æsthetic, problem than modern structures of the same dimensions.

But if architecture always has required and must require edifices on a great scale, and rising more or less beyond utilitarian objects, for her greatest effects, is there not also something to be done on a less ambitious scale—something, nevertheless, equally important, and which, having scarcely as yet received any adequate attention, presents a good deal of the suggestiveness always accompanying a new problem? It is only within the last century or so that we have had what may be called an architecture of the people—a style of the many, a vernacular of building, the results of which we see in those miles upon miles of dull brick walls with oblong holes in them which form the lining of the streets of London and of most of our large towns. This style, was developed first when English architecture, after the decline of the Gothic spirit, had sunk through various grades of pseudo-Classicism to the primness of the square brick architecture and round knobs of the Queen Anne period, which only required to have its few decorative features shorn off to make a serviceable general builder's style for flanking the streets of towns, while separate slices of it were stuck about the land as country houses. The weight which these dreary acres of brick lay upon our daily lives is perhaps hardly felt or recognised, because we have come to accept it as the normal state of things. There are signs, however, of a growing dissatisfaction with the present state of town architecture, and a possibility of that demand for something better arising which must necessarily precede the supply; and any amelioration of street architecture must also follow the law of modern architectural design, and commence first from the basis of practical considerations. The sanitary conditions of life in large towns, as affecting the arrangement and construction of dwellings, form, or should form, a very important element in in-

fluencing the town architecture of the future. The increasing value of building-sites, and the simultaneous increase of population, suggest new expedients in the method of building town houses, such as the introduction of the Paris system of houses "in flats," which has been a good deal talked about and even tried in London, but not as yet in an adequate manner. Such a system, if adopted at all extensively, would, however, exercise a very important influence on street architecture by rendering almost necessary, and at the same time facilitating, in an economical point of view, the employment of a far more solid and sounder construction, and affording opportunity for realising a higher architectural character than has ever hitherto been attained in this department of building in England. Something like this system has also been a good deal employed in carrying out the excellent work of providing healthy homes for the poorer inhabitants of towns at rents commensurate with their means. It must, however, be matter for regret to observe how little the possibility of rendering these model homes attractive in appearance, as well as sanitary in arrangement, is considered. Nothing could well be more unhomelike, nothing more repellent to the eye, or devoid of every gracious and pleasing association, than the aspect of some of these stacks of building in various towns in which families are to make their homes. Surely some effort may be made to give them a more attractive and picturesque, a less mill-like, appearance—to give some characteristic variety also to the various tenements, instead of their "damnable iteration" of the same arrangement of doors and windows in so many rows. This is considered, I am well aware, to be simply a question of remunerative return; but ought it to be entirely so? Or is there not, even on public grounds, some sort of return to be considered and thought of besides that of so much per cent.?

Architecture, however, is an art, though an art involved with, and mostly arising out of, practical and scientific problems; and if we come to consider what sort of form the hoped-for development of our town architecture, either in great buildings or in streets, should take, it is here that the study of our Mediæval architecture comes in as an inspiration. There are two species of architectural art: that which ornaments the exterior of a building with a kind of screen or scenic design of features arbitrarily selected for their supposed elegance, but having no direct connexion with the plan and construction of the building; and that in which the constructive design is itself the foundation of the architectural effect and expression, and is merely decorated so far, and in such a way, as to give relief and emphasis to this constructive expression; any decoration which does not conduce to this being, in fact, beside the mark and an excrescence. Of the first-named species the most familiar type is that which is called Italian, having been evolved by the Italian architects of the Renaissance, and consisting of an application of some of the principal features of Greek and Roman architecture (pilasters, columns, small pediments, &c.) to the exterior of a building by way of ornament. This style arose under the influence of that Classic revival of literature which led to the exclusive worship of "the antique" as the only source of true culture; and it is remarkable how this *prestige* has clung to the style, inasmuch that, until very recently, when any question of architectural style in connexion with some public building came before the Legislature, it was almost invariably the case that the Liberal party were in favour of a Classic style, supposing it to be essentially connected with progress and culture, and the Conservatives hoisted the Gothic colours, as champions of the past and of Mediævalism. Both sides were about equally in the wrong. Without denying that very pleasing and very elegant buildings—compositions they may be called—have been created on the Renaissance principle; without saying that there may not be occasions and circumstances under which it may be fitly employed in a purely decorative architecture (though it would be difficult perhaps to name them), it is evident that architectural design, as thus employed, is little more than a toy, with no more real relation to the practical basis of building than is to be found in the imitative Mediæval churches before referred to.

For the principle of all real and true architecture is the same—a decorative treatment based upon and emphasising the plan and construction of the building; and in this point of

view the Greek and the Gothic are the two truest and most perfect styles of the world, the only essential distinction being that the Greek works out with perfect completeness and unity of expression a trabeated construction, and the Gothic works out with equal completeness an arcuated construction. In all that constitutes the essence of architectural style, Salisbury Cathedral and the Sainte Chapelle have far more affinity with the Parthenon than have the artificial constructions of Palladio and Vignola. And Greek architecture, in its refined and reticent beauty, is full of suggestion for the modern architect; supplying, it may perhaps be said, the element demanded by modern culture and civilisation, while the study of Gothic supplies the element of strength and reality which has been so long absent from our architecture, and which is to be acquired not by copying and imitating Mediæval forms, but by cultivating a sympathy with the method and feeling of that grand and masculine school of architecture, and thereby acquiring the power of giving to the new practical forms of modern building their appropriate and picturesque expression, arising from the truthful treatment of materials and construction rather than from applied or misapplied ornament. Reticence in this last respect is one of the lessons we need most, in regard to London architecture especially. There is often more so-called "ornament" on one railway hotel than would be found on half a dozen cathedrals of the greatest age of Mediæval art; and the principle has yet to be learned by most of our architects, that every ornamental detail which does not assist the expression of a building injures it.

It is remarkable how very little has really been made, amid all the bustle of architectural revival in recent years, of the higher class of dwelling-houses as opportunities for something of what may be called the poetry of architecture. "Handsome" houses, and more lately "picturesque" houses, have no doubt been built by scores; but they seem to go very much on prevailing patterns, which succeed one another, like the fashions in dress, for no particular reason. The old notion of the typical English gentleman used to be that it was vulgar to have a house which differed materially or in any striking way from that of your neighbours. Surely it is that idea itself which rather deserves the epithet vulgar, even in the literal sense of the word. A great deal that is charming, a great deal of what constitutes the picturesque of life, might be realised in the interiors, especially, of the higher class of dwellings, if they were made the opportunity for the exercise of original thought and individual taste and feeling in the arrangement and decoration, instead of being so mechanically contrived on habitual and accepted schemes.

There has no doubt been a great advance in good taste as to house furniture and fittings of late years; and the monstrosities which used to crowd the windows of cabinet-makers would be scouted now. But a good deal of this, it must be confessed, is nothing more than another revival. A recent turn of popular thought has led to a kind of resuscitation of the art of what Tennyson rather happily calls the "tea-cup times." So far as architecture is concerned, this revival of the Queen Anne style seems the most rubbishy contemptible of all, since there is not even the excuse of an inherent grandeur in the style; it is the last lingering debasement of Renaissance architecture, the corruption of a corruption. The style of decorative art which belongs to it has a certain fitness and suitability to recommend it for interiors, though it is anything but intellectual, and is followed more as a matter of fashion than of deliberate opinion; indeed, it is impossible to avoid a disagreeable conviction of the imposture pervading the present mania for æsthetic fittings, Japanese jars and old china, and Queen Anne furniture and costumes; a mania which is carried so far that, as those who know anything of the ways of these disciples of the æsthetic must be aware, the joke in *Punch* about the gentleman who preferred the shorter of two sisters for a wife to the taller, because "she would go better with my style of furniture—buhl and marqueterie, you know"—is scarcely an exaggeration of literal fact. There is something contemptible in this exaltation of the mere decoration of life (a sham decoration, too) above the reality; and something quite apart from real artistic feeling, than which, in its true sense, nothing can harmonise better with that "plain living and high thinking," the decay of which was so feelingly deplored by Wordsworth, and from which we seem so very, very far at present.

BERKS ARCHÆOLOGICAL SOCIETY.

THE members of this society recently had a day's excursion to Stanford, Pusey, Cherbury, Charney, Denchworth, and Wantage.

At *Stanford Church* the visitors were received by the Rev. E. Penwarne-Wellings, who explained the various objects of interest. The principal feature of the edifice is a curious little erection, of the character of a turret, in the north aisle, facing the Holy Table, which is believed to be peculiar to this church. There are steps up to it from the aisle, at the back; there is no vestige whatever of any steps on the other side. This was probably erected subsequently to the roof, the entrance-door being late fifteenth century. The vicar said it had been thought that this part of the church stood before the aisle was opened out, but the theory was clearly untenable from the character of the doorway. Some interesting and old glass in the east window represents St. Catherine.

The party then drove to *Pusey House*, where they were received by Mr. S. E. Bouverie Pusey, Mrs. Pusey, and the Rev. T. Vincent (vicar). The hall contains a bas-relief, over the fireplace, representing King Canute giving the celebrated Pusey horn to the first Pusey on the beach at Southampton. The legend is, that when the king rebuked his sycophantic courtiers by showing them his inability to command the sea, the seat on which he sat to give them the lesson was placed for his Majesty by the ancestor of the ancient house of Pusey, who received in return the horn which is now the chief object of interest in this district. The bas-relief, which surmounts a large sculptured horn, is of the same date as the present house, viz., 1750. The Rev. C. H. Tomlinson showed and explained this most singular relic of bygone times. It bears the following legend upon a silver-gilt band of the fifteenth century, elegantly wrought:—"I, Kyng Knowde [Canute] gave Wyllyam Pecote thys horne to holde by thy lond." The Rev. C. H. Tomlinson said it was not known by the family whether the horn was really and truly the original horn given to their ancestor by King Canute. Camden said:—"The family of Pusey held the village of Pusey, in Berkshire, in fee, by a horn which was first given to William Pecote by King Canute. Dr. Hickes, in 1681, states that in his time both the horn and manor were possessed by Charles Pusey, who had recovered the manor in the Court of Chancery, before Lord Chancellor Jeffries; the horn itself being produced in Court, and with universal admiration received, admitted, and proved to be the identical horn by which, as by a charter, Canute had conveyed the manor of Pusey 700 years before. The horn is that of an ox of middling size, mounted in silver-gilt, in workmanship of the latter part of the fifteenth century. The colour of the horn is dark brown, which proves it to be a real ox-horn, and not, as was sometimes the case, made of ivory. It is 2 ft. 6 in. long, and 9½ in. high from its feet; the circumference at the largest end is 1 ft.; in the middle, 9¼ in.; and at the small end, 2¼ in. The dog's head at the orifice was formerly moveable, turning upon a joint, so as to make it either a hunting or a drinking horn." The earliest historical mention of the family was in 1155, when Henry de Pesie held the manor. They could not go back historically earlier than that, but if they could accept Lord Chancellor Jeffries's view they would see that it was placed beyond doubt that the horn was really given by Canute to the first Pusey, Pesie, or Pecote—as it was variously spelt.

Pusey Church was then visited, and its history and monuments were explained in a paper by the Rev. T. Vincent, M.A., rector, who said,—The earliest monument of our parochial past is a white marble incised sepulchral slab, now in the north transept. Two figures thereon, in devotional form, may well, from their decided lineaments, be accounted likenesses of Sir Henry Dogett and his lady, who in their earlier years had probably thrilled with horror at the tidings of the capture and burning of Joan of Arc, and may even have heard the shouts of joy which welcomed the news of the victory of Agincourt. The inscription round the stone runs thus:—"Hic jacent corpora Henrici Dogetti, Armigeri, et Amye, uxoris ejus, qui quide[m] Henricus obiit XII. die mensis Augusti. A. Domi. MCCCCLXXX., et dieta Amya obiit die mensis—(A. Domi. MCCCCLXXX., qui aiabs misiet (propitietur Deus)." Now, seeing that the present church was built in 1745, this stone must evidently have been removed from an older church. Of this older church not a vestige now remains to show

its date, nor even a tradition as to its site. . . .

We pass now to age marks outside the church, and the first question which naturally presents itself is this,—Does the present church stand upon the site of, at least, its immediate predecessor? There are no records to answer this question, not even a drawing of the older church, although defunct only 131 years ago. On careful consideration, I am inclined to say that the present stands on the site of the building which immediately preceded it. Outside the south transept there stands a stone monument, evidently of some age, with a brass inserted on its side, to the memory of "Rd. Pusey, alias Pesey Pecote," who "died comfortably," August 2nd, 1695, ninety years before the present church was built. True, this monument might easily have been brought thither from an older churchyard elsewhere, but it does not bear any marks of removal. This, however, is not the only witness. In a row to the south-west of this monument are four headstones, bearing dates, two of them 1720; one, 1738; and another, the southernmost, 1748. None of these show the least signs of removal.

A pleasant cross-country drive brought the party to the ancient British camp of *Cherbury*, a treble-ditched earthwork, in excellent preservation. The Rev. C. H. Tomlinson gave an interesting address on the subject of the camp. He did not at all know why it was described in the programmes for that day as "Romano-British"; he must disclaim the name himself, as he considered it was a purely British camp. He had no doubt the name of Cherbury, whatever it might mean, was exactly the same as the French word *Cherbourg*. Like most British camps, it had no particular history, but it had been a universal tradition that King Canute had a palace or abode in this camp, which was of very large extent. What they did know from history was that Canute's father, Swegn, on his progress from Wallingford to Bath, destroyed and burned all the villages between the two places in the Vale of White Horse. Supposing it to have been Canute's Palace, they had it between the two villages of Pusey and Denchworth. Looking at that camp of Cherbury, as he thought they ought, as a British rather than a Danish camp (as some had considered it), the question occurred in what relation it stood to other camps, and to the district generally. They were probably all aware that Mr. Jas. Parker, of Oxford, had a theory that almost every British camp had near it a Roman camp, which the invaders threw up when they came into the country in order to take Britain bit by bit, swallowing up the country by conquering one British camp after another. The British camps were almost always nearly or quite round, while those of the Romans were of a square or oblong square shape. Mr. Parker's theory, which he had no doubt was in the main correct, was that Aulus Plautius, who was sent into this country some decades after Christ, threw up all those square camps. Mr. Tomlinson referred at length to various illustrations of this theory in the camps at Letcombe and Limbrough, Uffington and Hardwell, Sinodun and Dorchester, Leafeld and Loughborough, Lyneham and Knowlbury, &c., in all of which the first was a British camp, and the second, contiguous to it, a Roman; there were no square camps, however, near the British camps at Lydington and Badbury. After he had heard Mr. Parker's theory on the subject, he tried to find a square camp near Cherbury.

At *Charney* a good specimen of the ancient market cross was noticed en route to the Manor House, the residence of Mr. James Beesley. Here Mr. E. Dolby, Abingdon, gave a brief account of the building and its history. In 1554 the Manor, which had belonged to the Abbey of Abingdon, was granted to Sir William Gorffyn; in 1806 it belonged to Mr. G. Keck, M.P. The party inspected the ancient "solar," or drawing-room, and the small oratory attached, which contains a piscina and ambury. The rear of the structure, which contains the solar and oratory, is of thirteenth-century work, the front being modern. *Charney Church* was then visited, and found to contain a very good segmental Late Norman arch, and traces of a "squin," or hagioscope. The features of the church, which is Norman, are a very singular and well-preserved tympanum (probably Early Norman work) and the very remarkable ornamentation of the south porch, which is composed of rude heads, with beards, conventionally treated.

At *Denchworth*, where a small plain market cross is still standing, the Rev. C. H. Tomlinson read a paper on the history of the parish and its church. The parish was first mentioned in 811,

in the *Abingdon Chronicle*, when King Kenulf (the Mercians then possessing this part of England) gave it to the Abbey; in 947, after it had again become part of Wessex, certain land in the parish was given to a man named Wulfic, who gave it to Abingdon. The name Denchworth had been said by some people to come from "Dunce's town;" but in his opinion it was called Denchworth, because it was the settlement on the extreme confines of the great mother parish of Worth or Longworth, of a family called Dench or Dunch. In 1265 a certain Henry de Tubbeney gave lands in the parish of Denchworth to found a chantry in the church for the erection of an altar to the Virgin. The chantry was now called the north transept. In 1299 the advowson of the living belonged to William de Bosco, and the lower part of the tower must have been built about that time. Its style was Early English, the superstructure being Perpendicular. Opposite the Norman doorway (the oldest part of the building) was built a north doorway, which was blocked in the Early English times; it was made that people, in accordance with the ancient superstition that the way to Heaven was literally "through the Church," might walk and carry their dead straight in at one door and out at the other. The chancel was erected in the Decorated period, and the south transept a little later,—at the time when the manor-house in the village was built. The Perpendicular font, which Mr. Parker considered a very fine specimen, came later in that period. In 1557 died Wm. Hyde the elder, who was represented on a very curious brass as kneeling at a desk, twelve sons coming behind him; from his mouth proceeded a scroll bearing the words, "Miserere mei Deus sedum magna misericordia tuam." His wife Margery, who died five years later, knelt at a desk on the other side of the brass, and eight daughters came behind her (the family having numbered twenty); a scroll from her mouth had the words, "Heale my soule, O Lord, for I haue synned agaynst the." That brass was the great wonder and curiosity of Denchworth. On the one side beneath the figures above described there was the inscription,—

"Quisquis transieris pro nostris ora aiabns,
Et junctos tumulo tu pœce jungo Deo.
The whiche Wylm Hyde Esqwyer decessyd the second
day of Maye in the yere of oure Lorde God mcccclxviii.,
and the sayde Margery his wyfe decessyd the xxvii. day of
June in the yere of our Lorde God mcccclxii."

It was a rescript brass, and had been put into its present position with thumb-screws, that both sides might be examined. The brass, which had probably been bought in Reading, by William Hyde, sen., as old metal, and was the oldest dated brass extant, bore the following inscription on the reverse side:—

"Edward Roye danglete qe fist le siege denant la cite de Berewyk et coquist la bataille illeogs et la dite cite la veille seinte Margarete lan de gae mcccxxlii mist ceste pere a la requeste Sire William de Montagu foundour de ceste mesonn."

William Hyde, sen., having got possession of the brass dated 1333, had his own inscription put on the other side, and it was embedded in a stone on his tomb in the church. In 1852, said Mr. Tomlinson (we quote from the *Reading Mercury*), a certain young man living at Oxford came over to the district; his name was Street. He was, most unfortunately, allowed to try his 'prentice hand on Denchworth Church. Amongst other things, he destroyed a good piscina and sedilia in the south chancel window, and made the splay now existing. He took away an ancient rood-loft, in which used to be a orquifx with a taper before it; and blocked up in the unsightly way they saw, at the corner of the south transept, the rood-loft stairs, or else destroyed them; and as to the brasses, in order to put down coloured tiles, he took them all out of the stones in which they were embedded, used the stones to make a pathway in the churchyard, and knocked the brasses into the plaster of the wall with brass-headed nails. The consequence was that the brasses were being eaten away when he (Mr. Tomlinson) came there by the galvanic current set up by the brass and iron in the damp wall. With the kind help of the Hyde family he got the brasses properly set in slabs of stone and put in the wall as they now saw them. He had been also able, by the liberality of various persons, to put in a very good east window, two south windows, and a small baptistery window, and to get a decent altar-cloth. Proceeding to the outside of the church the remains of the doorway leading up to the rood-loft were noticed, and the church-porch. The vicar explained that, in 1633, the then incumbent, Ralph Kedden, who on account of having thirteen children, probably

found it very difficult to study in the vicarage, went to the churchwarden, Mr. Geering, at the Manor-house, with the request that he would make him a study, and a room was made over the church porch by that worthy, in conjunction with his friend, David Brewster, a stationer of London, in it being chained about 150 old books. When Mr. Street "restored" the church, he pulled down this interesting old room, and erected in its place a porch with a simple lean-to-roof, like a dust-bin. He (the speaker) had managed to alter that into the present gable-roof.

From Denchworth a pleasant drive brought the excursionists to *Wantage*, which they reached at 5 p.m. It had been intended to visit the church and other objects of interest, including King Alfred's Bath, the Priory (the birthplace of the famous Bishop Butler), and the Grammar School, but time only permitted a cursory inspection of the fine church. The proceedings of the day concluded with a dinner at the "Bear."

BOARD SCHOOL BUILDING IN LONDON.

STATISTICS.

At the first meeting of the London School Board, after the recess, Sir Charles Reed made a statement of considerable interest as to the number of new Board schools which have been erected in the metropolis since the formation of the Board. He said that the first Board built or secured sites for eighty-six schools, with accommodation for 79,625 children; and that now, at the end of another three years, 134 new schools had been opened, accommodating 115,942 children; in addition, forty other new schools were in course of building or contracted for, and twelve of these would be opened by November, the whole forty accommodating 31,199 children. Beyond these the schools on sites purchased or selected numbered forty-seven, accommodating 35,070, thus giving a total of 221 schools, with 182,211 places for children.

The cost of sites, in the case of completed schools, has been 5l. 0s. 10d. per child, which, the chairman observes, is not excessive considering the enormous price of land in London, and the necessity under which the Board lay of planting the schools, not where land happened to be cheapest, but where the children requiring provision lived. According to a Parliamentary return, the cost of buildings in the case of completed schools was but 9l. 8s. 4d. per head, being 18s. 6d. less than the Board's estimate, and more than 2l. below the cost in several provincial towns where labour is cheaper. In addition to their new schools, the Board has, at the request of the managers in each instance, taken over fifty-three schools, with places for 17,938 children, while it is further providing for 11,824 children in forty-four temporary buildings. The chairman adds that the best evidence that the Board has not overbuilt is found in the fact that the schools have filled as fast as they have been opened, and this while, as a rule, the efficient voluntary schools not only have not suffered, but have received large accessions of children. The number of children on the roll of all efficient voluntary schools in the metropolis in the year 1871 was 222,518, whereas last Christmas the voluntary schools had on their rolls 263,704 children, and the Board 125,398, showing on the whole an increase of 164,505.

A YEAR'S BUILDING OPERATIONS IN GLASGOW.

At the Glasgow Dean of Guild court a few days since, the Lord Dean of Guild King, in making his retiring speech, gave an epitome of the figures relating to the building operations of the past year, comprising the estimated cost of the buildings, exclusive of the sites. The number of houses for which linings have been passed by the Dean of Guild court from 1st September, 1875, till the 31st of August, 1876, are:—Houses of one apartment, 965; of two apartments, 2,803; of three apartments, 1,248; of four apartments, 440; of five apartments, 161; and of six apartments and upwards, 129. During the same period, 563 single and 336 double shops have been passed. These represent the aggregate sum of 1,268,500l. Churches, halls, and schools represent 112,700l.; warehouses, shops, and workshops, 445,174l.; alterations and additions, 297,875l. The new streets which have been passed during the year amount to fifteen in number, their length altogether being 2,583 lineal yards; the total of the various linings

passed during the year amounting to 2,125,249l. Comparing these results with those of 1875, it would be found that while the linings granted in the preceding included 841 shops and 5,582 houses, those for the present year represented 899 shops and 5,746 houses. The extra number this year had been accompanied by a decided tendency towards larger houses. It was very remarkable that 11,228 new houses should have passed within two years, because the average increase in the population of the city within the Parliamentary boundaries since 1872 is estimated only at about 9,500 persons, representing 1,900 houses, and the actual average increase in the uninhabited houses during the last fifteen years amounts only to 1,400l. per annum. Making all allowances, the erection of houses must be proceeding in a ratio in excess of the wants of the population. The total money represented by linings granted in 1875 was 1,826,150l.; in 1874, 1,345,800l.; and in 1873, 1,210,514l. The last two years exhibit an increase of about 55 per cent. over the two preceding—a result which no one would have expected to find concurrently with a general and protracted depression in almost every branch of industry. In the opinion of the Dean of Guild, the following additional powers were required by the Court, and could be obtained only by legislative enactment:—1. Provision for wide and sufficient openings through three-sided or four-sided solid blocks of houses. 2. The alteration of the clause by which, under certain circumstances, the air space between a front and a back tenement may be made to serve for both, thus reducing the ventilating area of each to one-half of the ordinary statutory extent. 3. The control of the internal re-arrangement of houses, when even without external change larger houses are converted into houses of one or two apartments. 4. Provision for forming all private sewers and for laying all drainage pipes under the immediate supervision of the master of works, just as in the case of public sewers.

EXTENSIVE TOWN IMPROVEMENTS AT WALSALL.

ADOPTION OF THE ARTISANS' DWELLINGS ACT.

IMPROVEMENTS of a very important character are about being carried out at Walsall, under which about 120 houses in one of the worst districts of the town will be swept away, and the site, covering an area of about 2 acres, entirely relaid out. It appears that the district in which the houses are situated has for many years past been in a most unhealthy state. At a special meeting of the Town Council, held recently, the Mayor, in describing the district, said that its entire soil seemed to have been saturated with disease and death for generations past, and its population given over to drunkenness and idleness. Amongst the 120 houses which it contained, twenty-four were of notoriously bad character, whilst seven public-houses were adjuncts to establishments of ill fame. Such was the low and degraded sanitary state of the locality that it would be impossible to work any effectual remedy by the application of the Public Health Act, and the land in the centre of the town, closely adjoining, was too much wanted for business purposes and other new buildings of a respectable character for the present dens to be allowed any longer to exist. As a further proof of the unhealthy character of the district the mayor stated that the dwellings there had not inaptly been described, by a sanitary commissioner of the *Birmingham Daily Post*, as "houses of call for fever and cholera," and nothing short of an entire clearing away of the whole of the property could remedy the sanitary evils existing there. The council would be culpable if they did not avail themselves of the powers given by recent legislation, and cut this cancer out of the midst of the community. He proposed a resolution, founded on a report of the medical officer of health, declaring that the district was an unhealthy area, and that the provisions of the Artisans' Dwellings Act be adopted with reference to it. He said that the total value of the property proposed to be included in the scheme for clearing the site was estimated at 17,000l. It was also estimated that by the demolition of the houses about 500 persons would be turned out, and he explained that it was proposed to provide for these persons. There was land in the immediate vicinity of the town under the control of the Corporation, which could be adapted for artisans' dwellings, and these might be built before the carrying out of the scheme was commenced, or whilst it was in progress.

It was the most important scheme that had ever been brought before the council, both as regarded the health and morality of the community. Mr. Alderman Williams, in seconding the motion for the adoption of the Act in reference to this property, said he could not have believed that such places as he had seen existed in Walsall, if he had not visited them. In the course of a discussion which took place on the subject, it transpired that the remodelling of about half of the older portion of the town was desirable in addition to the proposed improvement, but the expense would be so great that they felt they dared not deal with it at present. The resolution was passed all but unanimously, with an addition that in carrying out the scheme new buildings for the displaced inhabitants be provided simultaneously.

"COLCHESTER CASTLE A ROMAN BUILDING."

SIR.—You did me the honour to refer to my book "*Colchester Castle a Roman Building*," in the *Builder* of Aug. 19: permit me to make the following observations. The book shows—First, that the architecture of the castle is Roman; second, that the writings of archaeologists do not prove it to be Norman. It was spoken of uncourtously by Mr. John Henry Parker, C.B., at the meeting of the Royal Archaeological Institute: vide the following extracts from a "*Fall Report of the Proceedings of the Institute*," reprinted from the *Essex Standard*. (Colchester, 1876.)

Page 50. Aug. 3.—"Mr. Parker said it was a Norman castle, and to say it was Roman would be absolute nonsense. The archway was a very good specimen of the commencement of the twelfth century, with all the ornamentation of the end of that period."

Page 108. Aug. 7.—"Arrived in the quadrangle, or great courtyard of the castle, Mr. Parker gave a description of the building. It was, he said, most distinctly a Norman castle, built at the end of the eleventh century. He held in his hand a book, by a modern and living architect (George Buckler), who was so insane as to suppose that the castle was a Roman erection; but he saw above him, in the walls, fireplaces, and whoever heard of fireplaces in the Roman period? The building, he repeated, was unquestionably Norman; but, as was usual at the period, of a very plain, though substantial style. The ornamentation, however, which they observed, was added fifty years later, at which time also the grand Norman gateway must have been built, as it was of the twelfth-century style. There was not a vestige of Roman work about the place, except the materials of which it is composed, and which were utilised in consequence of their being to hand, and were doubtless the ruins of the Roman wall."

Page 107. Aug. 7.—"Some said that the bricks were not Roman at all, but were in imitation of the Roman; but one brick he pointed out was evidently of the fourth century, and undoubtedly Roman. There were some subterranean passages beneath the castle, and these, he said, were Norman cellars, from which a large quantity of the earth had never been removed, simply because it was not convenient to carry it away. Poor Mr. Jenkins, who lived twenty years ago, and whose ideas were forty years behind, then, might be excused for supposing the castle was Roman; but for a modern architect, like Mr. Buckler, to say it was Roman, was childish nonsense. The castle was not, as was supposed, a 'keep,' but a large Norman castle intended to assist a small garrison in keeping a large and discontented town in subjection; and was after the same style as that of Rochester, which was of fifty years later date."

Ibid.—"On the north wall Mr. Parker pointed out a buttress, which, he said, placed beyond doubt the Norman build."

Mr. Parker's declamation did not throw so much light upon the architecture of the castle as the brilliant lamps provided by Messrs. Joslin on the 3rd of August, and from Oxford he wrote to the *Essex Standard*, stating that he "frequently spoke rather too fast."

Probably Mr. Parker spoke too fast when he said that the large castle was intended to assist a small garrison, that the building showed work of two centuries, and ornamentation of two periods, that there was one brick of the fourth century, and a buttress of Norman build. And when Mr. Parker vehemently exclaimed, "Who ever heard of fireplaces in the Roman period?" had he forgotten that he accompanied Dr. Bromet to Wheatley in 1846, and found a fireplace, about 3 ft. high, built of brick, in a Roman villa? (*Arch. Jour.*, ii., 352). Mr. Lysons found one 3 ft. 4 in. wide, and arched, in a Roman villa, at Witcombe, in 1818 (*Archæologia*, xix., 181; *Arch. Jour.*, xiii., 92). In fact, the coldness of this climate compelled the Romans to add to the hypocaust system, in order to insure sufficient warmth in their living-rooms during the long winters of Britain (*Jour. Brit. Arch. Assoc.*, iv., 371). Roman fire-dogs of handsome make (*Ibid.*, xxix., 126), an open hearth with appliances for suspending cooking-vessels (*Ibid.*, xviii., 394), and a stone curb, burnt on the inside (*Arch. Jour.*, xiii., 329), are so many evidences of Roman fireplaces having existed in Britain. Not only the climate, but other circumstances (say archaeologists) demanded a general modifi-

cation of the architectural arrangements and details of Roman buildings in Britain (Jour. B. A. Assoc. iv., 371), and yet some living archaeologists are unable to appreciate the differences between Roman buildings in Rome, and Roman buildings in Britain; or, to distinguish between the work and materials in Roman buildings, and those in reputed Norman buildings (Arch. Jour., iii., 290).

The author has examined professionally nearly all the buildings mentioned by him, and compared them with the writings of archaeologists. "Why truly," said the king (to Dr. Johnson) "when once it comes to calling names, argument is pretty well at an end."—(Vide "Boswell's Johnson.")

GEO. BUCKLER.

THE BRITISH ARCHEOLOGICAL ASSOCIATION IN CORNWALL.

THE *Cornish Telegraph*, in an article on the recent visit of the British Archaeological Association to Cornwall, says that from a commercial point of view the importance of the Congress may not have been great. "Indirectly, indeed, it may draw visitors into these parts and advertise Cornwall (especially Penzance) thoroughly in all the leading London papers. However, until the Great Western Railway improves its railway accommodation we cannot hope for a great influx of visitors. They may wish to come and see our many curiosities, but the journey, so much more tedious than the run to Scotland or to a Continental capital, deters them.

But, if we look at matters from a higher basis than £. s. d., we cannot but say that the visit of the British Archaeological Association may be regarded as an event in our literary history. The relations of the archaeologists to our local inquirers may be divided under two heads:—(1.) In relation to,—(1.) Our Pre-historic Remains; (2.) Our Mediæval Antiquities. As to the first, it seemed that the archaeologists came to us rather as learners; with regard to the second, decidedly as teachers. The reason is manifest. Cornwall is the favoured region of Celtic remains, and consequently our Cornish antiquaries have had great advantage over the observers of other counties, in living in the midst of a region so rich in curiosities of this kind. On the other hand, when Mediæval remains are in question,—old churches, baronial castles, or venerable manor-houses,—the professed antiquaries and architects were able, from their long and varied experience and observation, to throw a flood of light on questions affecting our Mediæval local remains. It was here that the county gained by the Congress; in the other matter, the Congress, perhaps, was indebted to the county. Experienced eyes detected traces of old masonry, and relics of alterations and additions, of which, perhaps, few before dreamt. Especially was this true of Madron Church, where Mr. Crook detected, in the east wall, traces of three successive churches. At St. Michael's Mount, the date of the chapel was fixed shortly before William of Worcester's visit. Many minor local problems were settled,—or at least approximately so,—the general tendency of the inquiry being to trace the remains of earlier edifices in the walls of our existing churches, and thereby throw a light on periods till now almost a blank.

On the whole, then, we are inclined to regard the visit of the Congress as of considerable value to Cornwall, and an event long to be remembered."

BURSTING OF A RESERVOIR: NARROW ESCAPE.

THE inhabitants of several mining towns and villages have had a narrow escape from disaster, by the bursting of a reservoir a few days ago. These stores of water are sometimes dangerous neighbours.

The present case is the large reservoir of the Shildon and Weardale Water Company at Towlaw, Durham, which was constructed of malleable iron and cast-iron plates, cylindrical in shape, and holding about 1,000,000 gallons. The bottom of the reservoir was made of puddled clay, resting upon a very insecure foundation, as the coal, which is only a few feet below the surface, has recently been worked out. The iron plates which form the cylinders are 10 ft. in height, and above the surface, and to strengthen them an embankment has been raised around the outside.

A leakage being reported, the engineers hurried up, and found a number of children on

the spot, and the water gushing up from between the plates and the outside embankment. The water soon tore away with irresistible force the cast-iron plates, made a large breach, and rushed down the reservoir-field, into the cutting of the Stockton and Darlington Railway, along which it flowed like a river. The embankment on both sides of the line confined the outburst until its arrival at the crossing leading to the Towlaw Ironworks. It then took several channels, going through houses, and fortunately found a stoppage in a large empty pond.

CLERKS OF WORKS AND THEIR DUTIES.

CURIOUS CHARGE OF WILFUL DAMAGE.

At the Newbury Borough Police-court, on the 2nd inst., Mr. Henry Duval Brown, clerk of the works at the Newbury Municipal Buildings, was summoned that he did unlawfully and maliciously commit damage, injury, and spoil to and upon two lengths of certain stonework, termed "moulded string," on a certain building now in course of erection there, the property of John Crook, the contractor for the erection of the buildings, thereby doing injury to the said property to the amount of 1l.

Mr. Beckhuse appeared for Mr. Crook, and Mr. W. W. King for the defendant.

Mr. Money, the architect of the buildings, was one of the witnesses called on behalf of Mr. Crook. Mr. Money deposed that the clerk of works was engaged by him in pursuance of instructions of the Building Committee.

Mr. Money, in reply to questions, said:—The duty of the clerk of works is to condemn improper materials on finding that they were going to be used. I have no bias in the case. The duty of the clerk of works would be to complain to the foreman, who, by a clause in the contract, represented the contractor. My duty is to condemn the work, and I should expect the builder to alter it.

Mr. Beckhuse.—If the builder does not remove the work condemned, are you justified in touching it until you have given fourteen days' notice?

Mr. Money.—If the builder or contractor did not alter the work condemned by me or the clerk of the works then it is in my power to give a written notice and employ another builder. Mr. Crook did not object to alter it.

Mr. Beckhuse.—In case of a dispute between the builder and the architect, who was to settle it?

Mr. Money.—Two members of the Institute of Architects.

Mr. Beckhuse.—There was a dispute?

Mr. Money.—No one would ever think of sending for two architects over a trumpery stone like this; indeed, they would not undertake such a thing. It would be a perfect farce.

Mr. Beckhuse.—On what ground was this stone condemned?

Mr. Money.—It was objected to because of its bonding; it was crippled, not properly worked, and not according to specification.

Defendant.—In the first place, it was short.

Mr. King.—The duty of the clerk of the works would be to report any materials that were bad?

Mr. Money.—Quite so.

Mr. King.—Do you recollect whether Brown had it condemned before it was used?

Mr. Money.—I cannot answer that. Mr. Crook saw it when it was condemned and made no objection. Received a complaint indirectly that the condemned marks were rubbed out. The breaking of the stone was not a course I should have adopted. I believe it is frequently done. Brown called at my office to tell me, but I was away from home. The stone was marked in my presence and Mr. Crook did not complain. It was a mere trivial matter. The worth of the stone was not more than 10s. or 15s.

Mr. Beckhuse said the stone was marked on the 15th September, and the next morning before breakfast it was broken.

Mr. Crook was not called as a witness.

For the defence, it was contended that the stone was condemned before it was placed in the building; that when it was placed in position it was marked by the clerk of the works to be taken out, but that the work was proceeded with and the mark obliterated; and that it was after it had been marked a second time, and Mr. Crook had been again told of its defectiveness, that the stone was broken.

The magistrates, after deliberation, came to the conclusion that, under the circumstances, the clerk of the works was justified in breaking the stone, and that there was no malicious damage in the case.

The case was, therefore, dismissed.

From a long report in the *Newbury Weekly News*, the magisterial proceedings appear to have been conducted with some acrimony and want of dignity.

Newcastle Society of Antiquaries.—The usual monthly meeting of the Newcastle Society of Antiquaries was held on the 4th inst., in the Old Castle, when a paper was read by Mr. R. Carr-Ellison, on "Inscriptions on the Roman Altar recently found near Benwell."

OBSTRUCTING THE PATHWAY.

MR. DANIEL LOGAN, surveyor, living at Hernehill, appeared before Mr. Ellison, at Lambeth police-court, to a summons charging him with assaulting Mr. Lewellyn Archer Jones, a barrister.

The complainant stated that on the morning of the 18th ult. he was walking with his wife along Poplar-walk, a public footpath leading from Hernehill to Loughborough. Some little distance down he saw a string drawn across the path about 2 ft. from the ground. It was fastened to some brickwork each side of the path. Seeing the defendant there; he asked him to remove the string so that his wife might pass. The defendant, instead of doing so, immediately commenced abusing him, told him to be off, and declared if he did not he would put him on his back. The complainant was about to unfasten the cord, when defendant took him by the wrist and shook his fist in his face.

Police-constable 100 W said he heard the defendant swear at complainant and call him a barber's clerk.

Mr. Fullagar (for defendant) said the complainant might easily have stepped over the cord, which was placed there in order to carry out the line with regard to some buildings the defendant was superintending.

Mr. Ellison said the defendant had no right to place the cord across a public footpath, and if the complainant had cut it he would have been perfectly justified. He ordered the defendant to enter into his own recognisances in 30l. to keep the peace, and to pay 1l. 3s. costs.

A WORKMAN'S CLAIM FOR WAGES.

HOLTGEN v. HOLLAND AND HANNEN.

In this case (heard at the Westminster County Court on the 6th inst.) the plaintiff, in the employ of the defendants, sought to recover 7s. 2d., being the amount of one day's pay.

Plaintiff said that on the Friday previous to last Bank Holiday he instructed a shopmate to ask the foreman and cashier whether he was to resume work on the following Monday; and, in the event of that being the instructions, he requested that the cashier should notify the same on a little slip of paper, to be enclosed in his "pay-bag."

According to the statement of plaintiff's messenger, it appeared that the cashier declined the trouble of writing the required slip, and plaintiff went to work as usual.

Witnesses were called for the defence to show that none of the defendant's men were at work on the Bank Holiday, and that those who were at work were in the employ of a sub-contractor, to whom a portion of the work was let. Also it was stated by a witness that plaintiff had only been seen on the works for an hour or two after ten o'clock in the morning, whilst a member of defendant's firm stated that notices were conspicuously posted up both inside and outside the gates of the works, to the effect that no workmen would be required to work on the Bank Holiday.

Plaintiff denied that he had seen any such notices, and insisted that he had been at work from seven o'clock in the morning until two o'clock in the afternoon.

His Honour said it was perfectly clear the plaintiff had no right to recover, because, in the first place, he had received no express instructions to resume his work on a general holiday; and, secondly, he had not waited for the reply of his messenger. Under those circumstances judgment would be for the defendants, with costs, as it was understood that the present proceedings were not taken at the plaintiff's risk, but at the instigation of the society to which he belonged.

LANDLORD AND TENANT.

PONTING v. ROBERTS.

In this case, heard at the City of London Court, before Mr. Brandon, Deputy Judge, the plaintiff was the landlord of certain premises in Gutter-lane, City, where he carried on business and let offices.

One of his tenants (Gale) gave him verbal notice in December last that he was about to give up his offices. Before the expiration of the quarter the plaintiff went into the office, and found the defendant in occupation, who told him he had exchanged offices with Gale, upon which the plaintiff said he should require 25s. a year rent, in lieu of 20l., which had hitherto been paid by Gale, and if he were not prepared to pay that amount he had better leave. The defendant did not dissent, but when applied to for the following quarter's rent he refused to pay more than 5l., which he now paid into Court.

The Judge ruled that that was all the plaintiff was entitled to, and told him he had no right to have entered the office in the way he did, the letting having taken place with Gale, and not with the defendant.

Infringement of Building Bye-laws at Darlington.—At the Darlington Borough Police-court, on the 3rd inst., Robert Borradaile, a builder, was charged with having within "the district of the Local Board of Health and the Urban Sanitary Authority for the borough of Darlington, unlawfully built the external walls of the second story of a certain dwelling-house, being three stories in height, and situate in certain streets there called High Northgate and Hope Town-lane, of a less thickness than 15 in., to wit, 10 in." Defendant pleaded guilty, and was fined 5l. and costs; in default, one month's imprisonment. On a second charge, for insufficiency of yard space, he was fined 2l. 10s.; in default, one month. On a third charge, for occupying the premises before they had been certified, he was fined 5l. and costs; in default, one month.

THE TURNERS' COMPANY.

THE Worshipful Company of Turners have offered this year, as usual, prizes for the best work submitted in competition by workmen in the trade. The prizes were delivered by the Lord Mayor on the 12th, and the objects submitted in competition were, by his permission, exhibited at the Mansion-house on the 10th and 11th ult. The prizes were offered this year for turning in wood, in pottery, and in diamonds, the principal qualities taken into consideration being beauty and symmetry of shape, exact copying, so that two objects of the same design should be precisely similar in every way, and fitness of the work for the proposed purpose. The specimens exhibited could scarcely be taken to illustrate the latter quality very well, as a large proportion of them seemed to be purely ornamental in character, and merely intended to show shapes in which the material might be turned. The pottery articles showed remarkably sharp and clean work, and the two jars or vases for which the silver medal and freedom of the city of London were adjudged to Mr. Higginbottom, seemed to realise the condition of exact resemblance most completely. The bronze medal in the same department was adjudged to Mr. Seabridge, for two vases of the same description. Among the articles turned in wood was a set of chessmen, showing very neat execution, though not so remarkable in the way of design. Some small articles turned out of fragments of the wood of the *Goliath* training-ship, which was burnt some little time ago, excited some interest. In general, the woodwork seemed to us to illustrate neatness of workmanship rather than artistic design. A considerable number of operatives visited the Exhibition to inspect the work.

SURVEYORSHIP ITEMS.

Derby.—At a special meeting of the Derby Town Council, held on the 11th inst., for the purpose of appointing a surveyor to the borough, the Selection Committee submitted the names of four gentlemen (out of eighty-four applicants) to the council for the appointment, and upon being put to the ballot, Mr. Clement Dunscombe, M.A., engineer to the Corporation of Kingston-upon-Thames, was duly elected by a large majority, at a salary of 580*l.* per annum. Mr. Bretland, Assistant Borough Surveyor, Belfast, obtained the next highest number of votes.

Lavenham.—A meeting of the Lavenham Highway Board was held last week to consider the applications for the appointment of surveyor to the Board. There were thirty-six applications. The following candidates were ultimately selected:—Mr. S. Hills, a member of the Board, and waywarden of the parish of Edwardstone, who said he was a farmer, and thirty-eight years of age; Mr. Alves, assistant engineer on the Great Eastern Railway, forty-two years of age, and now residing at Stratford; Mr. Pettit, forty-four years of age, builder, Hadleigh; Mr. Payne, sixty, who has resided at Mildenhall for many years, and had had the management of several miles in that district. A show of hands was then taken with the following result:—Alves, 36; Payne, 18; Hills, 9; and Pettit, 17. The two lowest were then struck off, and a show of hands was again taken for Alves and Payne. The former then got 37 votes and the latter 15. Mr. Alves was therefore declared elected.

Wigan.—Forty-two applications for the appointment of borough engineer and surveyor at Wigan were sent in, and these were reduced to six by a special committee appointed for the purpose. The selected candidates were, Mr. James Hart, Pendleton; Mr. Martin, Liverpool; Mr. Inch, Croydon; Mr. Branton, Durham; Mr. Wike, Leicester; Mr. Dawson, Stockport. These were desired to attend before the committee at the council chamber, on the 21st ult., when Mr. Hart, of Pendleton, was selected by seven votes to four for Mr. Martin. We are informed that Mr. Hart was requested to make arrangements for leaving the Salford corporation at the end of October, so as to enter upon the duties at Wigan, and also to inspect the works at Wigan during the interval. With both of these requests he complied. At the council meeting held for the confirmation of the committee's minutes, on the 5th inst., Mr. Eckersley moved they be passed, with the exception of those referring to the appointment of the borough engineer, and moved as an amendment that Mr. Bolton (the assistant) be appointed at a salary of 200*l.* This, after a

fierce discussion, was carried by one vote, —i.e., by eighteen to seventeen,—although it is stated the committee were unanimous in agreeing not to include Mr. Bolton amongst the six candidates for the final selection. Mr. Hart thinks he has good reason to feel aggrieved.

NEGLECTED ARCHITECTURAL BIOGRAPHY.

In reference to the annotated copy of Milizia's "Lives of Architects," referred to on page 969, I think it very probable that the copy belonged to the late Mr. George Bailey, curator of Sir John Soane's Museum. The last name you have given as written in it is that of Pugin, who died in 1852, and Mr. Bailey was for some time unwell before his death in 1860. He very kindly assisted me in the early biographical articles for the "Dictionary of Architecture"; and having afforded him many notes for his amendments of "Milizia," I endeavoured to obtain his copy from his friends, after his decease, but was too late.

Milizia's "Lives" is a work that requires to be re-written, not only for the correction of the matter, but in too many places for the true rendering of the passages in the original Italian. The architectural biography of architects of all nations is in no work so complete as in the "Dictionary of Architecture," so far as it is published, and I am glad to say that a part comprising the letters M, N, and O will shortly be issued to the subscribers. I have this year rewritten and added to the "Brief Synoptical List of the Principal Architects, Ancient and Modern, with their Chief Works," comprised in my new edition of Gwilt's "Encyclopedia of Architecture," being nearly 400 in number, which is, perhaps, the next best list and account of them, as far as it goes. I have ready the manuscript of a work on "English Mediæval Architects and Masons"; but whether it will ever reach the printer's hands remains to be seen.

WYATT PAPWORTH.

THE STRIKE AT MESSRS. DOULTON'S.

SIR,—A night or two ago I was conversing with a thoughtful and intelligent mechanic on the subject of technical education, the value of which in itself, of course, he fully admitted. "But," he added, "the masters, too, often give us very little encouragement to improve ourselves. For instance, look at that affair at Doulton's the other day, when they put two men experienced in terra-cotta work over the heads of all the bricklayers on the works, without even giving them a chance of showing that there were any among them capable of doing the work equally well. Now, what encouragement is it to men to fit themselves for the higher branches of their trade if this is the conduct pursued towards them?" I suggested that perhaps there were no men among the bricklayers able to do the work which Messrs. Doulton required. "Well," he replied, "I should hardly think they would be such muffs as to strike against the other two workmen if there were not." Soon after I was in conversation with the teachers and secretary of the bricklayers' technical class, held at the Artisans' Institute, and referred to what had just passed, when one of the teachers, who was formerly a journeyman bricklayer, but is now a clerk of works, said that there were many men in the bricklaying trade quite as competent to do the terra-cotta work at the Albert Embankment as the two men employed by Messrs. Doulton; and that the whole of the terra-cotta work at the Natural History Museum was at this very time being done by bricklayers. Now, the gist of all the reasonable objections (for no doubt there are some unreasonable complaints) made by the bricklayers to the employment of plasterers for executing what they certainly seemed justified in regarding as a higher branch of their own trade, is that it takes from them a stimulus to improve themselves in their trade, and furnishes a powerful argument to those evil advisers who laugh at any of their mates for caring about technical education, and recommend "another pot of beer" instead. But if it be asked,—What right have the bricklayers to regard terra-cotta work as a part of their business rather than that of plasterers? they answer at once that terra-cotta is a hard-burnt substance, made into blocks like bricks, and built into walls with mortar, in precisely the same manner as brickwork; whereas the material in which plasterers work, of course, is of a soft plastic kind, laid upon a hard substance.

HENRY SOLLY.

BATH STONE.

WILL some one give me a receipt for mending Bath stone? Brown shellac will not do. The white shellac I have tried, dissolved with rectified naphtha, but it does not answer.

M.

Geodesical Congress.—The Permanent Commission of the International Geodesical Association met on the 5th inst. in the Salle des Académies, Brussels. The Comte d'Aspremont-Lynden welcomed the Congress, after which General Baeyer, delegate from Prussia, bore testimony to the important share contributed by Belgium to the work of the commission. Various reports were then read.

Books Received.

Examples of Ancient and Modern Furniture, Metal Work, Tapestries, Decorations, &c. By B. J. TALBERT. London: B. T. Batsford, High Holborn.

THIS very tastefully got-up thin folio volume contains twenty plates of designs photolithographed from the author's drawings, in which original designs for furniture are interspersed with delineations of specimens of old work of special excellence or character; the original designs, however, predominating. The author is well known as one of our finest draughtsmen and ablest designers in this branch of decorative art. Prefixed to the book is a reprint of the introduction to Mr. Talbert's former publication on "Gothic Forms applied to Furniture Decoration," in which the author shows most sound critical discrimination on the subject of the application of ancient forms and feeling to modern requirements, though the literary form of his observations is somewhat defective, and the punctuation, &c., should have been more carefully corrected. Among other points remarked upon is the difficulty of applying anything like a Gothic type of furniture to the modern drawing-room, where everything is required to be graceful, refined, and elegant, while the prevailing character of Gothic furniture is mass and solidity, and a certain degree of stiffness and architectural character. The fact, of course, is, that when the original types of Gothic furniture were evolved, the drawing-room, in its present sense, was not in existence; the modern taste which calls for elegance and finish in furniture and fittings had not been developed. The tacit perception of this discrepancy was probably one reason which led to the change of taste in furniture, of which Mr. Talbert's present publication is one of the indications or records. Not that the author is here offering designs of Queen Anne or Georgian furniture. On the contrary, while declining any direct expression as to the merits of this or that style of architecture, he expresses his opinion that woodwork designs should be something more than merely imitative; that "it is still possible for those who believe in such work as Chippendale's, to buy the originals; but the reproduction of this work would be of most questionable utility. Chippendale was essentially a carver with a most redundant fancy; and to attain the feeling he liked,—to reach the rococo expression,—he ignored every other principle of true work. Those acquainted with carving know how easily this class of design lends itself to carvers' tools, until the gouge seems to have got a perfect mastery. But the result is only so much labour, ending in the monstrosities which are now so cheap and so plentiful." The author's object in his criticisms and designs is rather "to help to a conclusion as to woodwork designs." Among other mistakes to be found in the more costly modern productions in artistic furniture is the effort after too pretentious and monumental a character, unsuitable for any furniture which is really for daily use, and not designed for mere show or for a memorial purpose. On this point we are quite agreed with him, as a matter of opinion; but we can hardly see that the criticism is so specially called for at the present moment as he seems to imply. Except in rare and exceptional instances, it appears to us (and we have before called attention to the fact) that what is called artistic furniture at present, or all that portion of it which is more or less based on Mediæval models, is under the influence of a reaction towards what we should call a somewhat "homely" taste and style. A kind of cottage feeling pervades a great deal of it, so far, at least, as outline and general proportion and form are concerned. The mode of decoration and finish, it is true, counteracts a good deal of this; and modern black and gold, as Mr. Talbert remarks, whether it be called "Gothic" or "Old English," has in reality no resemblance to either.

In the designs which form the bulk of the volume, the change of taste to which the author alludes is exemplified chiefly in the prevalence of forms which have a closer affinity with Renaissance than with Gothic work, although evidently intended, in most cases, to elude too close identification with the details of any special style. The first illustration, the sideboard now in the South Kensington Museum, and on which we bestowed some words of appreciation on first seeing it at one of the International Exhibitions,

is an example of this; it is certainly Gothic in general feeling, yet there is hardly a detail in it that is Mediaeval. This piece of furniture has that somewhat homely stamp which we have spoken of; it is very solid and satisfactory-looking, and yet we can hardly accept it as the most fitting type of furniture for modern civilised life in its more graceful aspects. The "cabinet in the style of James II.," which follows it, is a far more suitable style of furniture design for a modern gentleman's house. The design succeeding this is the completely Classic Jacobean, which is at variance with Mr. Talbot's principles as to the avoidance in furniture of forms which are directly derived from architecture. At the same time, it may be admitted that the forms used here are in reality much better suited to cabinet-making than to building, though they first originated in building. This is one of the drawings which goes to indicate the change in the direction of taste since the author's former work. The drawing-room interior, No. 35 (the designs are numbered consecutively with the previous volume on Gothic Forms) is more distinctly Gothic in character; the author has evidently given some trouble to refining Gothic forms to the drawing-room standard, yet we cannot say that the *coup d'œil* strikes us as by any means what we should desire for a drawing-room; it hits the taste of the present moment, but is not really a refined style of drawing-room decoration; there is too little interest and beauty of form and line, too much prevalent spotiness of decoration; for in the present reign of taste not a particle of surface on wall, ceiling, floor, or fittings can be let alone; everything must be crossed and recrossed, and diapered, and powdered with some device: the general result is rich, but (may we be pardoned for saying it?) a trifle barbaric; with the drawing-room of the country vicarage, of the larger class, one may connect it; never with the *salon*. The "dining-room" scheme (44) is more in keeping, because this style lends itself better to dining-room design. This last-named drawing is the first of a series of eight drawings, which conclude the book, and which were prepared in the first instance for exhibition at the Royal Academy, where we believe we have noticed and commented upon all of them. The "Entrance to Hall" (47) is admirable in its way, though we here also complain of an over-richness of elaboration, which almost confuses the eye; a criticism less applicable to the "Entresol" (49), which is in a broader and larger manner; it does not look as well here as in the coloured drawing which we remember to have seen at the Academy. The last plate in the book is a successful reproduction of the perspective view of a "design for a staircase in the Jacobean style," which was in this year's Academy Exhibition, and was one of the most effective pen drawings we have ever seen in the architectural room there.

The designs for silks and tapestries are very good in style, combining breadth and conventionality of treatment with a sufficient flow of line; and there is a design for a wall-paper with frieze and dado, which is admirable in its detail, though the dadois, to our eyes, rather too light and flowing in style for the upper portion, with which it seems scarcely in keeping. The drawings of old work, though not numerous, show judgment in their selection. We object, by the way, to the use of the phrase, "*antique metal work*," as the title of plate 41; the word "*antique*" is connected by all association now with Classic work, Greek especially, and not with Gothic; "*ancient*" would have done as well, and is, in fact, the expression most commonly used by those for whom "*old*" is too simple a word. A short chronological table of the dates of some of the principal domestic edifices in England; and the reigns with which the different styles of furniture-art are connected, is a useful addition to the book, which, besides its other recommendations, may be emphatically described as "good to crib from."

Historic Warwickshire: its Legendary Lore, Traditional Stories, and Romantic Episodes.
By J. TOM BURGESS. London: Simpkin, Marshall, & Co.

THE history of Warwickshire is rich in legends and romantic episodes, and Mr. Tom Burgess has made good use of them, and has so produced a very interesting little book. The author is well known as a local antiquary, earnest and painstaking, and readers may feel pretty sure that, while being amused, they are, at the same

time, instructed. The volume has a number of illustrative engravings, and is dedicated to the Marquis of Hertford.

VARIORUM.

SIR CHAS. DILKE, in a valuable paper on "English Influence in Japan" in the current number of *The Fortnightly*, gives us some reassurance as to the condition of modern art in that country. He says,—"English influence, of course, draws certain evils in its train. Birmingham metal-work, cut-glass decanters, gingham umbrellas, and hideous boots and felt hats, are spreading in the towns, and it has been my unfortunate fate to see an ex-Daimio dressed in a ready-made coat, driving a gig, and to behold the detestable suburban villa, near Tokio, in which another lives. At the same time, Japanese art has not yet been killed by English 'taste.' The show-rooms of the former palace of the Mikado at Kioto, even the tiger room in which the Mikado used to sleep, are surpassed by the marvellously lovely wall pictures of the rooms in the priest's house, at the temple on the Tokaido, near where the Enoshima path turns off, at Fujisawa. These are, I believe, but a few years old, and they certainly show no falling off from the work of the best period. There is one room of birds in a snow-storm, one of processions on a gold ground, one of egrets, and one, this last being the most beautiful,—of flights of kittiwake gulls settling on or rising off the sea,—while hundreds light and run along the sands. Many of the new screens in black, brown, and white,—with no colour introduced except in the plumage of birds, much of the work in mixed metals applied to belts and other articles manufactured for the European market, the application of enamel to objects also produced for Europe, and such books as the new Nautical Almanac (in which even tables of logarithms are made artistic by the exquisite copper-plate engraving of the Japanese characters), on delicate mulberry-leaf paper, compare favourably with the productions of the best days of Japanese art."—A writer in the *Leisure Hour* says, as to Palestine Exploration,—"People seem scarcely to have realised the fact that Captain Warren and his men have actually found King Solomon's wall, still standing as his builders left it, mostly buried, it is true, under thousands of tons of ruin and rubbish, but there still, towering above its foundation on the living rock,—140 ft. in some places, above 170 ft. in others! Who is there that has really taken in this astonishing fact? Not many, I think. The grand barrier by which the wise and mighty king separated the site of the temple which he was about to build for the dwelling-place of God, still exists! It has been examined and measured by Captain Warren, whose indomitable energy and courage enabled him to overcome all the obstacles and all the dangers involved in mining operations which have no parallel in the history of the world. And there the wall stands, preserved for us by the ruins heaped around it—ruins of the Holy House itself, and of the city of Jerusalem. This wall is not merely founded on the rock; it is sunk into the rock, into which sockets have been cut to receive the lower course of stones, and make them immovable foundations for so mighty a structure. Along the second course,—that above the foundations,—the stones are found to be marked with Phœnician masons' marks (such as exist to this day in the ruins of Tyre and Sidon), and thus enable us to identify this as the work of King Hiram's builders. The splendour of the stones astonished Captain Warren. He speaks of their vast size, and of the most beautiful masonry:—'The stones are fitted together in the most marvellous manner, the joints being hardly discernible.'"

Birmingham Arts Guild.—A meeting to inaugurate the session of the Birmingham Arts Guild was held on the 4th inst. in the Examination-room of Queen's College, when a lecture was delivered by Dr. Sebastian Evans, on "Art Training," in the course of which he remarked that we in England were somewhat wanting in art training; in point of fact, in the true sense of the term, there had been no art training since the Reformation. We had lost a vast amount of time in not learning those common processes of painting which an old hand could teach in the course of a few months, but which, in England, the student had to hammer out in the best way he could, and with very little assistance.

Miscellaneous.

New Fragments of the Frieze of the Mausoleum.—Mr. C. T. Newton says in the *Academy*:—"Some years ago I was shown, in the courtyard of a Turkish house at Rhodes, two small fragments of reliefs, which I at once recognised as belonging to the principal frieze of the Mausoleum. After long delay I have at length obtained these two fragments, and on comparing them with the remains of the Mausoleum found at Bodrum I had the satisfaction of uniting each of the Rhodian fragments with one of the many stray pieces of the frieze which are preserved in the British Museum. This new combination gives us the greater part of a wounded Amazon who is in the act of falling, and the upper part of a Greek warrior armed with a shield, who is moving to the right. These two figures do not appear to be connected with each other. During this recent re-examination of the Museum fragments, I made another curious discovery. There is in the Imperial Museum at Constantinople part of an Amazon in relief, which I long ago recognised as a figure from the frieze of the Mausoleum, and of which a photograph is given in my 'Travels and Discoveries in the Levant.' Of this Amazon the British Museum possesses a plaster cast, to the fractured surface of which a fragment of a left thigh and leg found by me on the site of the Mausoleum has just been adjusted. We have, therefore, now absolute proof that the two Rhodian fragments and the Constantinople fragment came from the Mausoleum."

Dwellings for the Rural Poor.—At a meeting of the members of the Birmingham and Midland Association of Medical Officers of Health, on the 5th inst., Dr. Swete read a paper "On the Construction of Cottages for the Labouring Classes in Rural Districts, so as to comply with Sanitary Requirements." The present condition of the cottages of the labouring poor was, he said, for the most part deplorable, coming under the personal knowledge of every medical officer of health for a rural sanitary district. They in their official rounds saw the poor literally "huddled and hustled together each day like swine." He cited cases in his own district—the Droitwich Combination Sanitary district—and then detailed at length the principle on which proper cottages should be constructed. The only plan he could see of preventing the evil was that of obtaining for rural districts the urban power of making bye-laws. He had gone into the question of expense in erecting really good cottages for the poor. With the high prices caused by strikes he found that a landlord might obtain 3½ per cent., and yet have good and wholesome houses for his poorer tenants.

Hints and Helps for Working Boys.—In the *Labour News* for the 7th inst., Mr. Alsager Hay Hill, the editor, commences a new feature in the shape of "Dick Whittington's Column; or, Hints and Helps for Working Boys." Mr. Hill, in an explanatory note, says:—"It is not our belief that even the most industrious boy is bound to become Lord Mayor, and we are not certain that if he could do so he would always confer the greatest good on himself and his kind by his ambition. Nevertheless, the old chime that rang out to the apprentice's ears in the old story, be it true or not, 'Turn again, Whittington, thrice Lord Mayor of London Town,' may find a useful echo even in the busy clash of the nineteenth-century bells now ringing from every quarter of the working world. It is not many that have a carpet laid down for them in their journey through life, and perhaps it is well that it is so. We shall therefore assume that a boy has to make his own way. It will be our duty simply to show him, as far as in us lies, the straightest and truest lines for him to take, and to show him also some of the dangers and difficulties which are certain to beset him."

The Proposed New Town-hall at Yarmouth.—Touching the proposal (noticed in last week's *Builder*) for erecting a new town-hall in Yarmouth, "F.S.A." writes to a local paper as follows:—"The Town Council propose to confine the competition to the 'Classic' style. It is quite right to limit the cost, but surely it would be far better to allow the competition to be unfettered as to style? Why not let the town have a chance of rivaling those glorious structures which are to be found in some of the towns in Belgium and Flanders, testifying, after the lapse of centuries, to the former commercial importance of those places?"

The Floating Bath at Charing-cross Bridge.—At the meeting of the Metropolitan Board of Works on the 6th inst., the Works Committee brought up a report recommending that the application of the Floating Swimming-baths Company, for the sanction of the Board to an adaptation of their bath as a Glaciarium for skating on real ice during the winter months, be granted for the ensuing winter. Mr. Selway opposed the motion, and said that permission was originally given to place a floating swimming-bath near the Charing-cross pier on sanitary grounds, but the bath having proved a failure, the proprietors now wanted to make a profit by converting it into a skating-rink. He hoped the Board would not allow the bath to become a permanent structure in front of the embankment, and to form an undesirable termination to Northumberland-avenue. Mr. Edwards described the floating swimming-bath as one of the greatest eyesores on the Embankment. The recommendation of the committee was agreed to.

The London Guildhall.—"Iron-sided," in the *City Press*, concludes an article on "Incomplete Improvements," by noting a few instances of incomplete improvements which present themselves in a short walk from Guildhall. But first he asks,—"What shall we say about Guildhall itself? We have become so used to its one-eyed front and ragged back that it does not strike us, as it must every stranger who beholds it, as really disgraceful to the first municipal assembly in the world. With such places as Chester, Plymouth, and Leicester opening magnificent suites of municipal buildings, ought the City to be left for another year in its present condition? Let it be definitely decided what is to be done with the space now generally designated as Guildhall-buildings, and let it be done without further delay."

Coatham Convalescent Home.—The foundation stone of a new wing to the Coatham Convalescent Home has been laid. It having been found that mothers with young children, who were admitted were sometimes a source of annoyance to the other patients, it was resolved to add another wing in which would be provided accommodation for ten mothers with children. Plans were drawn by Mr. Norman Shaw, architect, of London, which included also an hospital for fifty children. The latter portion of the plan, which is estimated to cost 1,000*l.*, will not be carried out at present owing to a scarcity of funds. That part of the wing which is being proceeded with will cost 2,600*l.* The building will be erected under the supervision of Mr. Moor, architect, of Redcar, the contractor being Mr. T. H. Barton, of the same place.

Illuminated Manuscripts.—The loan collection of illuminated MSS. now being exhibited at the rooms of the Liverpool Art Club comprises nearly 200 specimens of Abyssinian, Anglo-Saxon, Chinese, Egyptian, English, French, Japanese, Mexican, and other productions. Professor Westwood has contributed copies of some very curious MSS. and illuminations, which he examined in various Continental museums and monasteries. The Earl of Derby has contributed some valuable specimens, and Mr. James L. Bowes a set of Japanese books illuminated with various miniatures. The Library and Museum Committee of the Corporation have contributed largely to the exhibition.

Paignton.—According to a Plymouth paper, buildings are springing up in all directions at Paignton, and the space between the railway and the sea is fast being built on. Messrs. Evans Bros. have in hand a terrace of fifteen large houses facing the sea, the whole of which will be ready for occupation by next season, and Mr. M. Bridgeman has in hand fifteen more in the Station-road, that are approaching completion. The parish church will, it is hoped, soon be out of the hands of the stonemasons and glaziers, and this, with the New Congregational Church, nearly finished, and the Iron Mission Church, will meet the want hitherto felt of public worship accommodation.

M. Van de Weyer.—On the 1st inst. the King of the Belgians unveiled at Louvain a colossal bronze statue of M. Sylvan Van de Weyer (formerly Belgian Minister in London), which, on its pedestal of blue Belgian granite, rises 11 metres high. The figure itself is 4 metres in height. It is by Charles Geefs, of Brussels, and is said to be a good likeness. The statue has been erected by public subscription at a cost of 10,000*l.*

Public Improvements at Balsall Heath.

The Balsall Heath Local Board, having applied to the Local Government for sanction to borrow 11,000*l.* for works of sewerage and sewage disposal, and for providing offices for the transaction of the business of the Local Board, Major Hector Tulloch, R.E., last week held an inquiry into the subject at the offices, Lime-grove, Moseley-road. In the course of the inquiry it was stated that the Board have already acquired, on favourable terms, the premises in Lime-grove, which have been fitted up as offices for the surveyor, &c.

Byron Memorial.—We hear by accident that, by permission of the Lords of the Council, a general competition for the execution of the Byron statue will be held in the month of November, at the South Kensington Museum. Models are daily arriving from all parts of Europe; and as upwards of 100 sculptors (including some of the most famous in the country) have intimated their intention of competing, a keen interest will be felt, not only in England, but in most of the capitals of Europe. The Exhibition will be opened on Friday, the 3rd of November next.

The Proposed Public Park for Brighton.

Mr. Alderman Bridgen's motion, to instruct the General Purposes Committee "to continue its inquiries as to the terms and conditions upon which the land at Preston can be acquired of Mr. Bennett-Stanford, M.P., for a public park, the uses to which it might be applied, and the cost of maintaining it," was, on the 4th inst., negatived by the Town Council by twenty-four votes to sixteen. The result will not (says a Brighton paper) raise the Town Council in the estimation of the town.

Lyme Regis.—On Sunday morning, October 1st, a fatal accident happened to a man named Thomas Wood. He was walking on the beach, about a quarter of a mile to the westward of the Cobb, probably looking for fossils, when a stone fell from the cliffs and struck him on the side. He was assisted home by two men, and Dr. Wollaston, who was immediately sent for, rendered every assistance, but the poor fellow died about two hours afterwards from internal injuries and the severe shock to the system.

End of the Locksmiths' Strike at Willenhall.—A meeting of the masters and men was held at Willenhall on the 9th inst., with the expectation of coming to a settlement of the matters in dispute. It was resolved,—"That this meeting will agree to resume work at the 7½ per cent. advance on the present price lists, with the understanding that the remaining 2½ be paid on the 1st of January, 1877." The meeting then ended. The men resumed work on Tuesday last.

Proposed New Town-hall, Old Meldrum.

A movement is on foot in Old Meldrum for the provision of a new Town-hall. The existing hall on the Square is of insufficient accommodation. The feuars are anxious for a new hall, and they have appointed a committee of their number to consider as to the provision of a new hall, but no company has yet been formed. The committee have instructed Mr. Duncan, architect, Turriff, to prepare plans for a new building.

Reward of Bravery.—The *Journal Franklin* of Liège says that, at the recent distribution of rewards for acts of devotion and bravery, the workman Caris, of Anthistes,—who, as our readers will remember, allowed himself to be burnt to the bone by molten lead, to save the life of one of his comrades,—received a public ovation. He was decreed a cross of the second class. A correspondent in the same paper asks, pertinently, what amount of devotion is necessary to merit the first class?

Health and Sewage of Towns.—A meeting of the Executive Committee of the Society of Arts in connexion with this subject has been summoned for the 24th inst.; and an invitation has been addressed to the surveyors and medical officers of health of the vestries and district boards of works of the metropolis, asking them to attend, to meet the committee, and confer with them on the house drainage of the metropolis.

Southport Chapel Competition.—The trustees of the United Methodist Free Church, Lord-street, Southport, having received seven competitive designs for proposed new chapel and school to be built in Duke-street, have accepted the plans submitted by Messrs. Maxwell & Take, Architects, 10, London-street, Southport. The amount proposed to be expended on the new building is 6,000*l.*

Toll Bridges.—It is stated that Mr. Wynne E. Baxter (Under Sheriff) has given notice of a motion for the next Court of Common Council, asking that it be referred to a committee to consider the advisability of giving Parliamentary notice of a Bill to effect the freedom of the toll-paying bridges over the Thames, with power for such committee to confer with the Metropolitan Board of Works.

Architectural Association.—The Architectural Association will commence its meetings for Session 1876-77 with a *conversazione* on the 27th inst.

TENDERS

For counting-house and foreman's residence, White-cross-street, for Messrs. J. B. Gapp & Co. Mr. F. Harger, architect:—

Stone & Humphries	£785	0	0
Pyke	695	0	0
Bruce	650	0	0
Baguley	616	0	0

For warehouse, Charterhouse-square. Mr. Coutts

Stone, architect:—			
Elkington	£3,400	0	0
Moreland & Nixon	3,311	0	0
Kilby	3,058	0	0
Lawrence	2,998	0	0
Mark	2,900	0	0
Ennor	2,835	0	0
Crabb	2,730	0	0
Scrivener & White	2,404	0	0

For an additional wing to the warehouse of Messrs. Heymann, Stoney-street, Nottingham. Mr. S. Dutton Walker, architect:—

Stevenson	£7,800	0	0
Messam	7,437	0	0
Underwood	7,430	0	0
Fish	7,370	0	0
Vickers	7,300	0	0
Hodson & Facon	7,282	10	0
Ward	7,250	0	0
Hind	7,167	0	0
Bromhead	7,103	0	0
Wood & Son	7,058	18	0
Bell & Son (accepted)	7,045	0	0

For the water-supply of the Urban Sanitary District of Ripley, Derby. Mr. R. Argill, jun., engineer:—

Contract, No. 7.

For erection of engine-man's house, boundary-wall, &c.

Quantities supplied:—			
Fletcher	£570	0	0
Slater	530	10	0
Warren	525	0	0
Fowkes	500	0	0
Clower (accepted)	482	0	0

Contract No. 8.

For the erection of engine-house, boiler house, chimney, and water-tower. Quantities supplied:—

Fowkes	£2,352	0	0
Clower	1,957	10	0
Fletcher (accepted)	1,890	0	0
Slater	1,850	0	0

Contract No. 9.

For the supply and erection of engines, boiler, cast-iron tank, &c.:—

Kirkland	£1,900	0	0
Bland & Son	1,595	0	0
Powis & Co.	1,550	0	0
Butterley Co.	1,450	0	0
Law & Son	1,450	0	0
Westray, Copeland, & Co.	1,330	0	0
Haslam Foundry Co.	1,280	0	0
Mason	1,229	0	0
Whieldon	1,210	0	0
Smedley, Bros.	1,125	0	0
Borwell	1,097	0	0
Tangye, Bros.	1,096	0	0
Thornhill & Warham (accepted) ..	1,095	0	0
Cowen & Co.	1,068	0	0
Newton & Co.	1,028	0	0
Buxton & Thornley	995	0	0
Bells & Co.	990	0	0
Lees & Co.	899	10	0
Swift & Co.	885	0	0

Contract No. 10.

For the supply of pipes, valves, &c., for service-mains.

Quantities supplied:—			
Powis & Co.	£2,559	0	0
Westray & Co.	2,361	12	9
Bland & Son	1,959	11	2½
Laidlaw & Son	1,715	8	9
Butterley Co. (accepted)	1,697	15	2

For the erection of four warehouses, St. Thomas Apostle and Queen-street, Cheapside, for Mr. E. Hart and Mr. W. Courtney. Messrs. H. L. Hambrick & T. J. Lambert, architects. Quantities supplied:—

Robinson	£9,774	0	0
Dove, Brothers	9,554	0	0
Newman & Mann	9,469	0	0
Ashby, Brothers	9,352	0	0
Browne & Robinson	9,196	0	0
Bangs & Co.	9,158	0	0

For new warehouses, Butte Docks, Cardiff. Quantities by the architect, Mr. Wm. Gaskell:—

Thomas, Watkins, & Jenkins	£7,493	0	0
Jackson & Co.	7,146	0	0
Shepton	7,143	6	0
Whalley & Pearse	6,787	17	9½
Jones & Co.	6,445	0	0
Howard	6,386	13	0
D. & J. Webb	6,249	0	0
W. J. & D. Davies	6,181	8	0
Biggs (accepted)	6,098	0	0

For alterations and additions to mansion at Palace Gate, Kensington, for Mr. H. P. Sharp. Mr. T. E. Knightley, architect. Quantities supplied by Messrs. Batterbury & Huxley:—

Manley & Rogers	£13,287	0	0
Downs & Co.	12,967	0	0
Ashby, Brothers	12,476	0	0
Newman & Mann	12,356	0	0
M'Lachlan	11,690	0	0

For erecting Board Schools at Ashwell, Herts. Mr. H. G. Luff, architect:—

Bates	£1,845	0	0
Thorne	1,800	0	0
Redhouse	1,790	0	0
Bailey (accepted)	1,680	0	0
Wilmott	1,390	0	0

For alteration to Oxford and Cambridge Chambers, Lord street, Liverpool, for Mr. J. Henstock. Messrs. Troughton & Prescott, architects. Quantities supplied:—

Parkinson	£622	0	0
Lamb	570	0	0
Beecham	523	0	0
Smith	505	0	0
Nicholson & Ayre	491	0	0
Thompson	483	0	0
Greenwood	479	0	0
Clarke (accepted)	460	0	0

For the erection of four houses at Upland-road, Peckham Rye, for Messrs. Charles Ross & Co. Mr. W. Paice, architect:—

Stowell	£1,400	0	0
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For the erection of a block of buildings in Queen-street, Maidenhead, for Mr. J. H. Clark. Mr. E. J. Shrewsbury, architect. Quantities supplied:—

Cox	£2,657	0	0
Silver & Son	2,345	0	0
Simonds	2,291	0	0
Woodbridge	2,223	0	0

For the erection of a villa in the Dudley-road, Clive Vale estate, Hastings, for Mr. Charles Alderton. Mr. E. J. Shrewsbury, architect. Quantities supplied:—

Womersley	£1,682	10	0
Vidler	1,671	10	0
Harman	1,630	0	0
Ditch	1,450	0	0

For reinstating two warehouses, Motley-street and Motley-avenue, Curtain-road, Shoreditch. Mr. John Hebb, architect:—

Abraham	£1,797	0	0
Rider & Son	1,778	0	0
Lathley, Brothers	1,770	0	0
Pritchard	1,731	0	0
Browne & Robinson	1,725	0	0
Macey	1,673	0	0

For roofs over new warehouses at Bankside, Southwark, for Mr. Moss Isaacs. Mr. C. Sewell, architect:—

Jopling & Co.	£900	0	0
Riches	645	0	0
Parker & Evans	585	0	0
Stone	575	0	0
Colliver	525	0	0
Winship	520	0	0
Blackmore	495	0	0
Vincent	457	0	0
Hutchinson & Co.	450	0	0

For additions to Holly House, Dorking, for Mr. B. Hicklin. Messrs. Bargman & Benson, architects:—

Hamblin, Brothers	£550	0	0
Healgrave	496	0	0
Patney	477	0	0
Lynn & Dudley	420	0	0

For the erection of house and shop, High-street, Hampstead. Mr. Edward Monson, jun., architect:—

Cohen	£900	0	0
Parker & Evans	890	0	0
Warne	875	0	0
Vincent	865	0	0
Hunt, jun.	673	0	0
Beach, Brothers (accepted)	645	0	0

For new dining-room at the Horns Hotel, Shoreditch, for Mr. C. Higginson:—

Eaton	£150	0	0
Stamp & Bowtle (accepted)	143	0	0

For alterations at the Cat and Matton, London-fields. Mr. E. Brown, architect:—

Stamp & Bowtle, accepted.			
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For stabling and offices at Woodberry-grove, Stoke Newington, for Mr. H. Burridge:—

Stamp & Bowtle, accepted.			
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Erratum.—In the list of tenders for St. Martin's Vicarage, Brighton, published in our issue on the 30th ult., the amount of Mr. Deacon's tender was stated as being 3,900l. It should have been 3,900l.

TO CORRESPONDENTS.

M. & T.—J. C.—C. M.—E. E. F.—E. A. Jun.—L.—S. G.—G. T.—C. R. C. (we have much more of such matter than we can use).—H. G. W. (Mr. Archer was the architect of St. John's, Westminster. The lines quoted were written of Vanbrugh, to whom the design of this church has been wrongly attributed).—P. G. (in such case the only way is to take it by means of brasses).—S. H.—Rev. J. J. N.—W. N. W.—D. T. & F.—L. L.—C. B. W.—G. M. R.—C. H. B.—C. G.—C. C. H.—T. M. R.—P. L. N. F.—J. S. G.—Mrs. R. N.—G. C.—T. S. & W.—S. Bros.—G. M.

We are compelled to decline pointing out books and giving addresses. All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the author.

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The Builder.

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SATURDAY, OCTOBER 21, 1876.

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Railway Work in Canada.



THE Intercolonial, a History, is the title given to a book of no little interest* in regard both to the constructional and to what may be termed the political aspects of railway-making. It contains the history, from the

first preliminary agitation of the scheme down to its final completion, of the line of railway called the "Intercolonial," which by a very circuitous route connects Quebec with Halifax and St. John. The book, as we learn from the prefatory letter addressed to the Hon. Alexander Mackenzie, Minister of Public Works and Premier of Canada, arose out of the fact that it became the duty of the chief engineer, on the completion of the line, to draw up a full report of it for the Government. Regarding the Intercolonial Railway as "national in its objects and character," the engineer thought that something beyond a mere professional and technical report would be of interest, and therefore, with the concurrence of his Government, has expanded the report into a general history of the line, giving all necessary technical information, but put into such a form as may make it of interest also to general readers. The idea has been exceedingly well carried out. There is no fine writing in Mr. Fleming's history; there is not, in fact, a superfluous sentence in the book; the technical description of the operations is fully illustrated by careful diagrams as well as by views of the principal structures on the line, while the interest of the non-professional reader is kept up as well by the clear and lucid account of the various difficulties in the route, and the means by which they were overcome, as by the broad view which the writer always keeps before him of the social and political relations of the subject, which impart to it, as he says, a national character, and have in one or two points also a direct practical interest for dwellers on this side of the Atlantic.

A great part of the introductory portion of the account is, in fact, intimately associated with the political history of Canada and New Brunswick. We can only just touch on the salient points in the long negotiation phase, as we may term it, of the scheme. The first suggestion of the advantage of a line connecting Quebec directly with the Atlantic coast was made from England in 1832, by Mr. Henry Fairbairn, whose letter on the subject, in the *United Service Journal*, is quoted at length, and a special

tribute paid by the author to the foresight which Mr. Fairbairn exhibited in suggesting at that early date the main features of a scheme which has only just been completely realised. The idea then was that St. Andrew's should be the maritime terminus of the line, which was to cut directly across country in as straight a line as possible to Quebec. In 1836, in response to an appeal for help from St. Andrew's for a project the importance of which had by that time become fully realised, the English Government voted 10,000*l.* to be expended in the difficult and costly process of making the necessary preliminary survey of a country then almost entirely uncleared, and the character of which had only been vaguely guessed at from the reports of a few hunters who had traversed it. Subsequently to this survey intervened the political difficulties in connexion with the Maine boundary question; and when, in 1842, the boundary between New Brunswick and the State of Maine was definitely settled, the result was to leave within the boundaries of the latter nearly the whole of the district over which the costly survey of 1836-7 had extended; a trifling *contrepens* which knocked that scheme on the head pretty effectually, and leaves at least the lesson not to survey a country till you know whether it is your own or not. The idea of the Intercolonial Railway revived, however, in the railway mania year of 1845; and in 1863, after repeated negotiations between Canada and the mother country, the English Government undertook to grant a loan of 3,000,000*l.* to assist the enterprise, so soon as a survey of the proposed route had been made and approved by Parliament. It was at this phase of the history that the author of the present volume was appointed to carry out the survey on behalf of the Canadian Government, and to co-operate with two other professional representatives of the Imperial Government and the Lower Provinces respectively. On the 5th of March, 1864, Mr. Fleming left Quebec for Rivière du Loup, the terminus of the already constructed "Grand Trunk Railway," to arrange about forwarding supplies and commence a reconnaissance, which had to be carried on in a country destitute of roads, upon snow-shoes and dog-sleds. The report was made in 1865, and fifteen lines, or combinations of lines, were compared. The doubt and difficulty about the route almost entirely resulted from the destruction of the possibility of a direct route between St. Andrew's and Quebec by the interposition of the limb of the State of Maine. For the details of the controversy which issued, upon the relative advantages of different routes, and which was not finally terminated till September, 1868, we must refer the reader to Mr. Fleming's book: the account has considerable interest in regard to what may be termed the political economy of railway-making. The main contest was between the principle of keeping as near the original short route as possible, skirting the Maine State frontier (and which was called the "Frontier Scheme"), and taking a longer and more cir-

cuitous coast route, touching the head of Chaleur Bay and then skirting the shores of the St. Lawrence and joining the Grand Trunk Railway at Rivière du Loup. The effect of this is to take the line over a large arc of a circle instead of over the chord of the arc as originally suggested; the extra distance being compensated for by the increased importance of the coast route for traffic and for military purposes, and the increased facility for sending supplies and materials for a line which touched the coast at several points, as compared with an inland route through uncleared districts. Eventually, and after struggling against much opposition, the engineer-in-chief, who had always believed in the coast route, succeeded in obtaining precisely that modification of it which he had recommended; and which, starting from Halifax, crosses the head of the Bay of Fundy to Moncton, whence it sends off a south-western branch about ninety miles in length to St. John's, continuing its course northward to Chaleur Bay, and westward to the junction with the Grand Trunk Railway on the right bank of the St. Lawrence: making a total length of more than 700 miles of railway. The selection of the Chaleur Bay route is not without interest for Europeans, as one idea in selecting it was, that a port for ocean steamers at Chaleur Bay would shorten the whole distance between Montreal and Liverpool fully four hundred miles, and that even between Liverpool and New York one hundred and sixty miles would be saved by commencing the Ocean passage at Chaleur Bay. In furtherance of this view Mr. Fleming mentions that a survey has already been made for a branch line of about forty miles in length eastward from the intercolonial main line at Bathurst to Shippigan, at the entrance of Chaleur Bay, with the view of providing "a short mail route between England and America"; and that the survey shows that only wharfs and piers, a short distance from the land, are necessary to make the harbour available for the largest steamers.

The line was carried on under Commissioners till 1874, when Parliament passed an Act vesting all the powers and duties of the Commissioners in the Minister of Public Works, to whom the present history is addressed. At the first meeting of the chief engineer and his assistants with the Commissioners on December 30th, 1868, a dispute arose, which was not settled for some time, in regard to the recommendation of the engineer that all bridges should be of iron, and the wish of the Commissioners to build them of timber. This is a point in the history which touches on the subject of some recent remarks of our own on the picturesque aspect of railways. Considering that the railway was made through a timber country, it would seem that, even on the obvious principle of the utilisation of natural resources, the Commissioners had reason on their side. The chief engineer, however, entertained a more decidedly opposite view, fought the matter perseveringly, and succeeded eventually (as he appears generally indeed to have done) in getting his own way. His main reason appears

* The Intercolonial: an Historical Sketch of the Inception, Location, Construction, and Completion of the Line of Railway uniting the Inland and Atlantic Provinces of the Dominion; with Maps and numerous Illustrations. By Sandford Fleming, C.E., Engineer-in-Chief of the Newfoundland, Intercolonial, and Canadian Pacific Railways. Dawson, Bros., Montreal; Sampson-Low, Marston, & Co., London. 1876.

to have been that iron was more permanent, could be delivered by sea at certain points without extravagant cost, and was free from danger from fire; and two of the timber bridges on the Grand Trunk Railway had recently been burned. This latter is a serious consideration, but might have been provided against by iron lining to the roadway, as it must be presumed the fire originated in those cases from cinders dropped by the engine. As to the question of permanence, is that fairly settled? While we applaud Mr. Fleming for his persistency in fighting for what he considered the best construction, we cannot but reflect, on looking at the numerous views of the bridges in his book, how in every case it is the ironwork which is the drawback to what would otherwise be a style of structure perfectly in keeping with the country, and cannot but wish that the experiment might have been fairly made of using the natural material of the country, and showing what could be done with timber, which the modern engineer so completely neglects for his favourite iron. But in his general views Mr. Fleming is remarkably in accordance with those recently expressed in our columns in regard to the treatment of railway structures, so far as appearances are concerned. He says (p. 113),—

"A railway of a high standard is, in fact, a simple problem. It does not exact magnificence of design, or works which astonish by their display or cost. Architectural monuments have no place on public works like the one in question, and many well-known structures can be regarded only as mementoes of useless expenditure.

As a theory, the perfect railway consists of two parallel lines of continuous rails, uniformly sustained by a firm and slightly elastic support. Bridges and culverts are incidents naturally to be looked for, but never to be introduced except where absolutely exacted. It is the duty of the engineer to design and establish them as cheaply as he can, having regard to permanency, and not to convert them into opportunities for display. Taste may even be consulted without any expenditure beyond that required to secure solidity, and the skill of the designers should aim at the attainment of effect with the least extent of adorned material, and strive after the grace of outline to be found in extreme simplicity.

In the Intercolonial Railway it was held better to aim at the realisation of this principle, than to advocate the introduction of structures remarkable for their magnitude and ornament, however gratifying to the personal pride of the designer."

We are glad to find an able engineer like Mr. Fleming so completely endorsing, not only the spirit but almost the very wording, of some of our own remarks on railway structures (p. 846, ante). How he puts his ideas into practice we see from such illustrations as the views of the large piers of the Metapedia and Restigouche Bridges (plates 13, 15), and the general view of the Nipissiguit Bridge (plate 22). The great mass and strength of the Restigouche Pier, in comparison with the light superstructure, is no matter for surprise when the habits of the river are considered. In addition to the chance of "ice-jams" when the winter ice breaks up, the Restigouche is subject to spring freshets, in which the water rises 18 ft. or so above the average level, and as a great deal of timber is cut on the banks of the river, the contingency of rafts and rift logs striking the piers and endangering the superstructure had to be provided against by the greatly prolonged cutwater, to act as a guard. The author mentions that he has seen a bridge bodily carried away in Canada by drift timber on a rising stream, and that when proper precautions are not taken the occurrence is not uncommon. "During a 'timber drive' at flood water, the logs form a jam against the piers, and as the water rises are raised beneath the superstructure, lift it from its seat, and finally carry it away." In order to give greater strength to the cut-water, it was faced with granite, which had to be brought nearly ninety miles, seventy of which only were by open navigation. The blocks, weighing from three to nine tons in their finished sizes, were prepared in the quarry. "The face stones of the cut-water, the coping, bridge seats, and the two upper courses of ashlar, together with the skew quoins on the down-stream end of the piers, are of granite. A striking contrast is accordingly obtained to the dark slate colour of the body of the masonry, which adds to the appearance of the structure. . . . The whole is built in Portland cement, and the exposed parts of the piers were secured by strong iron clamps, so contrived that it would be impossible for floating logs or ice to disturb a single stone without moving the whole mass to which it is attached." There are four mid-stream piers, and the work occupied five years and a half. The Nipissiguit Bridge was a much simpler affair, as the river is a comparatively shallow and well-behaved one. These illustrations, however, serve to show (as well as a good many others in the book) how very nearly modern engineering works, when treated unpretentiously and

frankly in reference directly to the constructive necessities of the case, may approach to the characteristics of Mediaeval building. There is something in the ponderous Restigouche pier, with its sloping lines and granite face, which irresistibly reminds us of the effect of a massive piece of early Gothic building, before the style had frittered into ornamental detail; and the outline of the Nipissiguit piers is as effective and picturesque as if this had been a main object. One can imagine how completely the effect and character would be taken out of these structures if the piers were ornamentally (?) panelled in the way many English engineers employ to give what they consider an architectural character to their constructions. The Tête-Mgauche Bridge, on the same section of line, which crosses a ravine with only a small stream, and where the piers stand mostly on dry ground, is a still more simple construction, the piers consisting merely of cubes of masonry carried straight up to the required height; the general effect at once recalls, on a larger scale, the style of bridge found over brooks in some wild parts of Wales, consisting simply of plain square dry-stone piers with a plank and rail across the top, and which, as we all know, artists are never tired of sketching and introducing into their landscapes. These and other illustrations at least indicate how entirely free from vulgarity railway structures may be, when there is no attempt made to dress them in an incongruous and ill-fitting decorative masquerade.

We need hardly say that the illustrations to Mr. Fleming's book are not confined to picturesque views; that full constructional plans and sections of the principal bridges are given, showing the details of the problems presented in bridging these (mostly) wide and rapid rivers. One or two points in the description of the process of constructing the bridges over the double stream of the Miramichi may be mentioned. This was one of the most difficult and important constructions of the route; and the section of the river was very deceitful. The preliminary boring operations, made with such boring implements as could be extemporised in the neighbourhood by a country blacksmith, to test the bed of the river, revealed a hard bed of some kind, under 25 ft. of water, and about the same of soft mud; and as the operator saw sandstone rock cropping up at the margin of the river, he excusably flattered himself that he had arrived at the rock. But subsequent tests with more perfect implements dispelled this pleasing illusion. What the first boring-tool had struck was a stratum of hard gravel, about 8 ft. thick, below which came about 70 ft. (in the centre of the river) of silt, then about 15 ft. of clay, and below that the rock*. By various borings it was ascertained that this false bed of gravel was a nearly horizontal stratum; and the question was, could this comparatively thin gravel deposit, floated upon a bed of silt, be trusted to carry the piers, and thus save the immense cost and labour of penetrating to the rock? We may cite the author's description of the operations, partly complicated by the fact that the Miramichi, at the point where it is crossed, is a tidal river:—

"The boring was performed in the usual manner, 7 in. tubing being used. Some arrangement was, however, necessary to meet the difficulty which the rise and fall of the tide presented when operating from the ice" (from which the borings were performed in winter), "in order that the tube should be maintained vertical and steady, and free from all liability to derangement, as the ice rose and fell. A wooden tube or box, 9 in. square inside, and of sufficient length to extend beyond the range of tides, was sunk through the ice, and had arms which rested upon and were made fast to the surface. This box protected the upper part of the iron tubing from the ice, while itself rose and fell with the tide. When operating from a scow" (in summer) "a well through the floor of the scow served the same purpose. On reaching a suitable depth a smaller tube, 5 in. diameter, was introduced, telescopic fashion, care being taken that the upper end of the smaller tube did not fall below the bottom of the larger one. The point of the tubing was in all cases made to precede the point of the valve auger or other boring-tool in use, and thus the exact depth and character of the various strata were ascertained.

As the boring proceeded for the north-west bridge, experiments were made to ascertain by direct pressure the load which the strata would carry. On the tubes reaching the point to be tested, and the material within having been removed, iron rods, smaller than the tubing, were passed down. The rods terminated in a blunt end with an area of three square inches. They were kept clear

* The complete section of the river given in Mr. Fleming's diagram suggests very vividly the immense lapse of time since these rivers commenced their present course. What is now sandstone rock is evidently the original "scowp," at that time probably much softer; then upon this comes the deposit of clay and the much thicker deposit of silt, and on that the new deposit of gravel which has had time to consolidate to almost the hardness of rock, and become the real bed of the stream, and receive 25 ft. of more modern deposit of mud.

from friction, and were loaded above the surface of the water with different weights, which were allowed to remain for definite lengths of time. In this manner the supporting power of the different strata in the bed of the river was distinctly ascertained."

A table of the result of these tests is referred to as given in the appendix, but appears to have been omitted through some oversight. The information, however, satisfied the engineer that the gravel stratum could be trusted to, with a wider base to the pier than was at first intended; which, after a little inevitable grumbling on the part of the contractors, was agreed to. For the detailed account of the building of the piers, which is very interesting, we must refer the reader to Mr. Fleming's pages. The piers now stand on 19 ft. thick of concrete (the upper surface within 5 ft. of low-water mark), which rests on a bed of crushed stone of the same thickness, supported by the gravel stratum: and the whole of this was surrounded by a mass of "rip-rap," or loose stones piled together, as a further defence from the disturbing action of the current. The piers were heavily loaded and left for some time, as a further test of the security of the gravel stratum, which proved perfectly satisfactory; what little settling there was in the process of building being traced to the compression of the stone filling under the concrete as the load of the pier came upon it. The whole account is worth the attention of all who are interested in engineering works.

Among special points in the construction of the Intercolonial railway may be mentioned the form of abutment adopted by the engineer where the bridges rest on the embankment. He discards wing-walls altogether, and simply builds up a strong hollow tower of masonry with vertical sides the width necessary to support the shore end of the bridge, and round which the slope of the embankment is finished, so as to surround the masonry tower. It is needless to say that this method, the appearance of which may be judged of from the views of the Metis Bridge and New Mills Bridge (plates 8 and 20), does not make so neat a finish to the termination of an embankment as the wing-wall system, and it appears to us that there may be situations and soils where the wing-wall would be almost a necessity; but the practical objection to wing-walls in the Canada climate, as stated by Mr. Fleming, is, that if the embankment is composed of anything that will hold moisture, the winter frosts give it an expansive force which, in the end, will fracture or displace masonry of any strength; whereas it is impossible for the hollow towers placed in the heart of the embankment, on his system, to be injured either by the thrust of the earth or by frost. The description of the difficulties with the clay-cuttings near Trois Pistoles is a phase of the story to be noted. Another point we may mention is the method devised by an enterprising sub-contractor for excavating by water-action. At one place on the Metapedia River, "a steep bank, about 120 ft. high, and composed chiefly of gravel, projected for a distance of about 1,000 ft. along the edge of the river, leaving no site for the railway. It was designed to construct an embankment along the river side, protected by extensive crib-wharfing. The sub-contractor introduced a method of washing away the gravel by means of water-jets. Streams from the high side-hills were dammed up at a point about half a mile from the work; the water was conveyed by a wooden trough to the place required, and directed against the face of the bank in a continuous stream. Its force undermined and loosened the material so effectually that masses, often by thousands of yards, would slide into the river in a brief space of time. Immense quantities of material were thus removed, with very little manual labour, and at a cost, probably, less than one-sixth of ordinary excavation. The result was, that the railway was made on solid ground, requiring little or no protection. This system of excavating material by an available flow of water was so successful, that it was adopted on other portions of the line where streams with sufficient fall could be obtained."

With this new "wrinkle" (as we believe it is) for the engineer in dealing with matter that is in the wrong place, we must conclude our remarks on a very interesting history of the triumph of engineering skill and perseverance over natural obstacles in the formation of a line of road the ultimate importance of which can only be partially estimated at present. It is desirable that the attention of general readers should be directed to a book which will give them a better idea than most of the public at present have of the process of forming the rail-

ways over which they travel. As the author remarks in his concluding chapter, "the traveller who is borne onwards, moving in an hour a distance which would have taken weeks to traverse through the tangled forests, scarcely casts a thought on the thousands of the sons of labour who toiled so many days and years in making smooth his path." With a chivalrous feeling of giving due credit and honour to all who have aided him in the work, the chief engineer appends a list of the whole engineering staff who have been employed on the line each year from the exploratory survey in 1864 to the completion of the line, marking in italics the names of those since deceased, to whom this last tribute becomes therefore more especially a duty. We congratulate Mr. Fleming on the successful completion of a great enterprise, and on his able and clear compilation of a history which ought to interest equally the professional and the non-professional reader, whether in regard to the constructive difficulties that have been overcome, or the social and political importance of the route that has been completed in spite of them.

THE MAINTENANCE OF ROADS AND FOOTWAYS, AND PAVING CHARGES.

SIR GILBERT SCOTT, in a letter to the *Times* has drawn attention to the neglect of the vestry of the parish in which he resides to maintain and repair a certain "new" street, the houses in which have been completed for nearly two years; and he attributes the delay of the authorities in undertaking this duty to the fact that several houses are unoccupied, and "that there is no one to pay the rates."

The complaint of the eminent architect, and the admission that he seeks a remedy in the publicity afforded by a "letter to the *Times*," for want of knowing any other available means, are an apt illustration of the general uncertainty of the law on the subject, of the varying practices of different vestries, and—worse still—of the slight regard too often paid by the parish authorities to the individual interests involved, and the consequently harsh manner in which their powers are made to press upon owners, occupiers, and the ratepayers in general.

A short résumé of the legal enactments on the subject may be useful, therefore, in many ways.

The General Highway Act, 1835 (5 & 6 William IV., c. 50) is the principal statute upon which the general practice of parishes throughout the country is based; but for the metropolis this is supplemented by the Metropolis Local Management Act, 1855 (18 & 19 Vict., c. 120), and the amending Acts of 1856, 1858, and 1862 (the Act 19 & 20 Vict., c. 112; the Act 21 & 22 Vict., c. 104; and the Act 25 & 26 Vict., c. 102). There are other Acts incorporated with these statutes, or having special reference to the powers and duties of vestries in the metropolis, but it is not necessary for our purpose to refer here to more than one of these.

We must, however, make mention of the Act 57 Geo. III., c. 29, called the "Metropolitan General Paving Act," but generally known as "Michael Angelo Taylor's Act," which, passed in 1817, was incorporated, or so much of it as remained in force, by sec. 73 of 25 & 26 Vict., c. 102, in the Metropolis Local Management Acts. The operation of that Act was originally limited to the streets and public places then paved, or which might thereafter be paved, within the cities of London and Westminster and the borough of Southwark, and other parts included within the weekly bills of mortality, and within the parishes of St. Pancras and St. Mary-lebone, with certain specified exceptions; but these exceptions were abrogated, and the Act made to apply to unpaved streets, by the last-mentioned statute. "Many of the parishes comprised in the present metropolitan limits were neither within the bills of mortality, nor included among the parishes specially mentioned in that Act, but the 25 & 26 Vict., c. 102, sec. 73, has now extended many of its provisions to the whole of the Metropolitan districts." (Woolrych, "Metropolis Local Management Act," 1863, p. xxxv.)

Sections 6, 7, 8, and 9 of this Act are the only ones to which we need refer. Briefly, these sections make provision for the repair by surveyors of dangerous or defective pavements, on the requisition of the occupier or occupiers of houses rated to the relief of the poor at the sum of 50*l.* per annum.

But these sections refer only to streets already

actually paved. The question which is exciting so much public feeling in different localities is the action of the vestries in dealing with roads and streets either already taken over by the parish, but not paved, or "new streets" not yet formally taken under their charge.

Under the General Highway Act (5 & 6 Will. IV., c. 50, sec. 23) it is enacted that no road made, or hereafter to be made, at the expense of any individual, "shall be deemed or taken to be a highway, which the inhabitants of any parish shall be compellable or liable to repair," i.e., which shall be repaired at the expense of the rates, unless the person proposing to dedicate such highway to the use of the public shall have made, or shall make the same in a substantial manner, to the satisfaction of the surveyor, and of any two justices of the peace; after which, certain formalities in the way of certificates have to be gone through; and after such highway has been used by the public and kept in repair by the person dedicating it, for the space of twelve calendar months, "such highway shall for ever thereafter be kept in repair by the parish in which it is situate."

The Metropolis Local Management Act, 1855, prescribes other modes by which "new streets" may be taken by vestries or district boards. It is necessary, however, to understand the exact meaning which the Legislature assigns to the terms which will be used in the consideration of this subject. The word "street" is defined to mean "any highway (except the carriage-way of any turnpike-road), and any road, bridge (not being a county bridge), lane, footway, square, court, alley, passage," &c. (sec. 250, Act of 1855). The term "new street" is (by sec. 112 of the Act of 1862) defined to "apply to and include all streets hereafter to be formed or laid out, and a part of any such street, and also all streets, the maintenance of the paving and roadway whereof had not, previously to the passing of this Act, been taken into charge and assumed by the commissioners, trustees, surveyors, or other authorities having control of the pavements or highways in the parish or place in which such streets are situate, and a part of any such street, and also all streets partly formed or laid out."

By the same section the word "pave" is made to "apply to and include the formation of the roadway or footway of any street."

The above are the only terms used, the meaning of which any exact limits are assigned in the Acts.

Sec. 98 of 18 & 19 Vict., c. 120, gives power to every vestry and district board from time to time to cause all or any of the streets within their parish or district to be paved or repaired in such form and manner, and with such materials as they shall think fit; the work to be performed at the expense of the rates, except in cases where the freehold of any court, passage, or public place, not being a thoroughfare, is vested in the owner of any adjoining houses, when (by sec. 99) such owner is to do the work if necessary.

By sec. 105, it is enacted that "in case the owners of the houses forming the greater part of any new street laid out or made, or hereafter to be laid out or made, which is not paved to the satisfaction of the vestry or district board, be desirous of having the same paved," or if the vestry or board think it necessary to do so, the vestry shall well and sufficiently pave the same, and levy the expense on the owners of the houses forming such street, such amount to be determined by the surveyor.

This section was afterwards amended by Sec. 77 of the 25 & 26 Vict., c. 102, by which the vestry, having paved, or being about to pave, any new street, are enabled to call upon the owners of land abutting on or bounding such street to contribute towards the expenses of the paving, as well as the owners of houses therein, provided that the owners of land may be charged a less proportion of the cost than the owners of house property, if the vestry deem it just and expedient to do so.

Under these sections, it will be seen, the duties and powers of the authorities are amply enumerated. Highways the vestry of a parish is bound to keep in repair. All streets it is also bound to maintain, pave, and repair at the expense of the general rates, with certain exceptions where the cost may be levied on the occupiers. New streets, however, a vestry may cause to be "paved" at the expense of the owners of land and houses therein. The levying of the cost of this work on the owners is recognised as a just and fair act, as the owners are

more interested in the proper condition of a road than any other person, until, at any rate, it becomes a public thoroughfare,—a highway,—when the public, as enjoying the use of it, are fairly called upon to maintain it, and the parish generally made to contribute towards the expense. A landlord cannot expect his house in a new street to let well if its approaches at all resemble the description given by Sir Gilbert Scott of the condition of the road which has roused his indignation. He says, "During the winter it became so alarming and terrible a quagmire that the very horses were in the habit of taking fright at it, and refusing to plunge into its depths; but not a hand was stretched out to amend it, excepting a short length, which was repaired by private persons, and excepting also, that at one time during the winter a quantity of the less liquid mud was scraped up and laid in piles by the roadside. Spring came on, and the only amendment was that brought by nature in the reduced amount of water. As summer drew on, the pools of mud were converted into deep beds of dust, reconverted into quagmires by each alternation of rain; while the heaps of mud laid up by the sides of the road during the winter became hardened, and threatened overthrow to any luckless vehicle whose wheel during the night might chance to pass over them. Now, again, autumn and the rainy season have come on. The holes, long filled with dust, are again filled with slush, and we are threatened with the same terrors which accompanied the last winter, aggravated by the greater depths to which the abysses have been worn."

In such a case as this, it is not the "occupiers," but the owners who are liable to pay the expense of paving the road; and intending occupiers should take warning by the example, and insist on the duty being performed before they take possession of houses in a new road. In any case, the vestry have the power to see the work carried out, and they ought certainly to do so.

The longer such a work is left undone, the greater is the hardship upon future owners. If houses change hands while a street is left unpaved for a long period, the future owners have a fair cause for complaint in being called upon to pay up the quota of the expense which should have fallen upon the original owners.

There are great complaints, in fact, in various parishes that all the roads are not treated in the same way; the owners, in some instances, being called upon to contribute the whole of the expense; while, in others, the work is done at the cost of the parish.

A further sense of unfair treatment is excited by the fact that certain streets are paved with York flagging, the most expensive material; while others, similarly situated, are paved with asphalt, which is less costly; and in others, again, tar-paving, a still cheaper material, is employed. When the circumstances of different streets vary, this exercise of discretion is to be applauded, and it is quite reasonable that the most serviceable material should be used in streets subject to heavy and continuous traffic, while pathways liable to little wear and tear should be paved with the less durable, and cheaper, but equally suitable, material. But where streets subject to exactly the same conditions are treated differently, and the owners are called upon to pay, in the one case, the heavy charge of York flagging, while asphalt or tar-paving would be all that was necessary, and those materials are used in adjoining streets, the complaints are manifestly well founded.

But there is one further section in the Act, 25 & 26 Vict., c. 102, viz., sec. 78, which acts with the greatest hardship, and against the exercise of which a very strong feeling exists. In South London especially this is the case, and the Lambeth vestry have brought themselves into great odium by their action in reference to particular roads under this section.

This section enacts that in case any footway laid out at the passing of the Act of 18 & 19 Vict., cap. 120, shall have been repaired by the vestry or any other body, but shall not have been flagged, and the vestry or district board shall have deemed it necessary or expedient, or shall deem it necessary or expedient that the same shall be flagged, and such vestry or board shall have flagged or shall flag the same it shall be lawful for such vestry or board to levy the costs and expenses by a rate or rates upon the occupiers of the houses in the road, street, or part abutting on or next to the footway which shall have been so flagged."

In this section two terms are used, of which

no definition is given in the Acts, viz., "flagged," and "laid out." The street must have been "laid out" before August 14th, 1855, or the vestry cannot proceed under the section.

St. John's-road, Angell Town, Brixton, is one of the roads to which the vestry of Lambeth have been endeavouring to apply the provisions of this clause. In 1855 St. John's-road contained five houses. It now contains twenty-five houses, and is 200 yards in length. About six months ago, the vestry ordered the footways of the road to be "flagged," i.e., paved with York stone paving, and they have since called upon the occupiers to pay the costs. Up to that time the vestry had treated the road as a parish road, as it was a highway under the General Highway Act, 1835, having been dedicated under the provisions of the 23rd section of that Act quoted above; but the paths and roadway were allowed to get into a state of disrepair, and a public meeting of the inhabitants was called, in May, 1875, to urge upon the vestry the necessity of placing the street in a proper condition. Without in any way consulting the memorialists the vestry caused the flagging to be laid, and demanded the expenses from the occupiers.

The legal aspect of the question turns upon the construction to be placed upon the term "laid out." The occupiers maintain that the footpath was not laid out according to the intention of the Legislature, as there were only five houses built at the prescribed time. They contend that if "laid out" means "planned" on paper, or staked or marked out on the ground, there are many other roads in the parish which were equally "planned" many years antecedent to 1855, but which were not actually formed till very recently, and which the vestry have treated as "new streets," or have taken over and paved with flagging or otherwise at their own expense. The adjoining roads on the same estate (the "Angell Estate"), viz., the Wiltshire-road, Angell-road, and Angell Park Gardens, all of which were planned for building purposes at the same time as the St. John's-road, and which were actually completed at about the same period, have been flagged by the vestry, and the costs charged to the owners under the 105th section of 18 & 19 Vict., cap. 120, and the 77th section of the Act 25 & 26 Vict., cap. 102.

As a contribution towards ascertaining the real meaning of the words "laid out," we may point out that they are used in sec. 105 of 18 & 19 Vict., cap. 120, where "the owner or owners of the houses forming the greater part of any new street laid out or made," may call upon the vestry to pave the same, or the vestry may do so when they deem it necessary, and make the owners pay the costs. Now, no owner would incur this expense sooner than he could help; and he would not ask the vestry to pave a street which had only five houses built out of a possible thirty; for, under that section, before it was amended by sec. 77 of 25 & 26 Vict., cap. 102, the owner of say the five houses built would have had to pay the whole cost of paving the total length of street available for, perhaps, thirty or three hundred houses. The Legislature, therefore, could not have intended that the words should refer to the existence of the road on paper, but to its existence with houses along its whole length, or, at least, for practical purposes, for its whole length. Otherwise, where five houses were built out of a possible thirty, and the vestry chose to think the road should be paved, then they could have paved its entire length, and charged the expense to the unlucky owner of the five houses!

Had any other material besides "flagging" been used, the vestry must have performed the work at its own cost; and in many similar roads and streets in the neighbourhood, whose history is precisely identical with that of St. John's-road, tar-paving has been laid, and the costs charged to the general rates. The use of stone paving is said to be as unnecessary in the case of the St. John's-road, as in that of the other streets, and it is considered a hardship that so expensive a material should have been used when tar-paving would have sufficed.

When the above (78th) section was passed, asphalt and tar paving had not come into use, and "flagging" was recognized as the only permanent method of paving a path. It was, in fact, a choice between gravel paths and York pavement. At the present time, however, asphalt is superseding York paving, both on account of its relative cheapness and its perfect suitability and durability under the hardest foot-traffic. Tar-paving is now used as a substitute

in paths where the traffic is less heavy. It is a question, therefore, whether the literal expression in the Act has not become obsolete, as the intention of the Legislature evidently was to secure the most lasting mode of pavement,—which would now be equally secured by the use of asphalt. If the literal reading of the Act is to be enforced, the vestry here are legally right in their claim, provided they are right in their reading of the words "laid out." But, if they are right, it would be equally lawful for them to have paved St. John's-road with asphalt, at the parish expense, and years afterwards to tear up the asphalt, and lay down "flagging," and then to claim the costs from the occupiers, because the road was "laid out" (otherwise planned) in 1855, and because it had not been "flagged" (otherwise paved with an arbitrary mode of paving which was no better than the asphalt).

Such a proceeding would not be tolerated, and no vestry would attempt to carry it out. It would, however, be perfectly lawful, though not equitable. Under present circumstances, the vestry should temper legality with equity, and not insist on their claim.

Permanent public improvements of this sort are in all cases effected either at the public expense or at the expense of the owners of the property affected; and there is no other instance in which the costs of such works can be levied on the occupiers unless they have the power to recover from the owners. In the present case, many of the houses have changed hands, and the purchasers have no doubt given full value for the property, without taking into consideration the chance of such an expense hanging over them in the future. Occupiers have given full rents for their houses, without counting that such a charge was impending. Rents, therefore, have been maintained at their fullest figures, and the rates paid have consequently been heavy. Had there been any general idea that the present charge would be made, occupiers would have stipulated for reduced rents, and the rates would therefore have been less. To receive the full rates, part of which is applied to "paving purposes," and then to make a special charge for the special paving operation, is therefore an unjust act on the part of the vestry. The present rateable value of the houses in St. John's-road is 1,499l. In the year 1876 they will contribute about 122l. towards the General Purposes Rate, and in past years they have contributed in proportion. In other words, the vestry have been receiving heavy rates towards paving charges, which they would not have received if the present charge had been anticipated.

We have gone fully into particulars, and have found it best to argue upon a specific grievance, rather than to take the abstract question, as illustrating more forcibly the point to which we referred at the commencement of this article, viz., the hardship which is inflicted by the varying provisions of the law, and the conflicting action of different vestries, or of the same vestry in different cases. Not that St. John's-road is the only case to which we could refer; there are other similar cases, though this is in every sense a typical one.

We would here point out that the provisions of the law are, as will be seen from the above recapitulation, chiefly permissive, and not absolute. The only instance in which the directions of the Act are imperative is under section 105 of 18 & 19 Vict., cap. 120 (amended by section 77 of 25 & 26 Vict., cap. 102). Here the enactments shall be carried out. In all other cases the powers are permissive merely: "It shall be lawful" are the words used. This fact points to the probability of cases occurring where an absolute enactment would be harsh in its application; and in such instances the Legislature has wisely left it to the discretion of the authorities to carry out the law in the most equitable manner, trusting to their judgment not to abuse the confidence placed in them.

The Metropolis Valuation.—On Saturday a Parliamentary paper, extending to twenty-two folio pages, was issued as to the valuation lists of the Poor Law Unions in England and Wales. With regard to the area comprised in the metropolis, the estimated rental, as settled in the valuation list in force at Lady-day, 1874, was 25,148,033l., and last year 25,574,366l. The rateable value settled in 1874 was 20,672,765l., and in 1875, 21,019,507l. The difference in the two years was, increase 356,212l., and decrease 9,470l.

PROGRESS AT THE PARIS INTERNATIONAL EXHIBITION BUILDING.

THE embanking and masonry work on the Champ de Mars, estimated by the administration at 3,100,000 francs, has been adjudged to M. Delaunay, who accepted the above price, with a reduction of 10·50 per cent., and providing the required security of 100,000 francs. The construction of administrative offices and medical posts on the Champ de Mars and the Trocadero has been entrusted to M. Burgeot, at a total cost of 22,100 francs.

M. Krantz has been busily occupied in definitely selecting the members of the Exhibition committee for the department of the Seine. The duties of these gentlemen will be more arduous and delicate than those of the committees of the other departments, since Paris furnishes the greater number of French exhibitors, and the rejection or acceptance of inventions being at their discretion, considerable care will be required in selecting men known for their competency, sound judgment, and impartiality.

Two Italian delegates, Cammandant Ellena and Professor Basile, accompanied by M. George Berger, director of the foreign sections, had an interview with M. Krantz on Saturday last, to solicit more space, since Italy desires to take a large share in the Exhibition; they also approved of an international façade to take up the whole length of the grand avenue in the interior, which separates the foreign sections from the fine-art buildings.

The architecture which will be chosen for that portion opposite the Italian department will be selected from the purest specimens of the work of sixteenth century. In Austria, 370 manufacturers have already inscribed their names to take part in the Exhibition.

A THOUGHT OR TWO ABOUT CONSTANTINOPLE.

Now that "Eastern" matters, to use that very comprehensive and expressive term, are so much before the world, it may, perchance, be of some interest to make note of a few things which mark the Oriental man's ways of work, as distinguished from those whose lot in life has been cast in less heated and less sunlit paths. It is really wonderful to think of how slender the information is as to Eastern matters and manners and ways of life, considering the amount of talk there is every now and then about them. Man, we are sometimes told, is the same everywhere, and so, indeed, he may be, but his actions and ways of life must needs differ, as he finds himself under diverse conditions, and under another sun, and under the dire necessity of providing for such different conditions. Many may, perchance, think that this subject is trite, and the matter of it all but exhausted, but it is not so,—very far from it; it can hardly be said to be fairly commenced, if we go at all to the heart of the matter. Humanity, in a broad sense, is of course pretty much the same all the wide world over, but diverse conditions and climate create such differences in detail that the broad principle all but disappears, and races of men are seen to differ in their modes of work, in arts, in the art of living, and in daily existence, as distinct animals differ from each other,—a subject of no small import just now, when the tendency of the dominant world is to level all things, and to induce uniformity everywhere.

In the first place,—and it will evidence how much is wanting, in spite of the multitude of books on matters connected with the "East," to use that general term,—it is not a little strange to find how little it is that we really know of so remarkable and world-famous a city as Constantinople! The world of to-day is just now a good deal interested in that famous city, and in the actions of those who now possess it. How long they will hold it, who shall say? It is thoroughly typical of an Eastern city, or perhaps we should rather phrase it, as more nearly descriptive, a Southern city. We have had some special means of getting a little insight into the specialities and peculiarities of this famous city, or congeries of narrow lanes and ways. They are all typical of the past, and most surely the present is fast doing away with them, and the day will come when the city of the Sultan, as it was, or even now is, will disappear totally, and the future city will differ but little in street arrangement and laying out, and house planning and building, from that of any other newly-built and modern collection of buildings. The

charm and poetry of the city, even as it now is, and has been, lies in the main, it must needs be admitted, in its very inconvenience, and in the confusion of its arrangement, if the term may be allowed. Nothing can be more irregular and tortuous than its lines of ways and streets, without plan, and accidental as are the paths through a primeval forest. The narrow water-course which runs through the centre of it is quite straight and regular, compared with the direction and course of its wayward streets. A good and correct plan of Constantinople, as it is, would be a good and useful thing to have, and would be of infinite value in the future as well as now.

Constantinople is about thirteen miles round, and is enclosed by walls on the western, or land side. The "Harbour," or Golden Horn, on the north, divides it from Galata, and the Bosphorus divides it from Scutari. These are properly but suburbs, but make up together the city of Constantinople. It would be quite impossible to imagine a site better fitted for the building of an imperial city on. Nothing would seem to be wanting; and it is no wonder that the eye of the world is every now and then fixed on it. It may be as well to mention in passing that the population of this imperial city is about half a million, and is made up of a somewhat motley group—of Greeks, Armenians, Jews, Arabs, "Europeans," and Turks; the Turks making up, as it would seem, about one-half of the population. It must be needless to say that the city stands on the site of antique Byzantium, founded 656 B.C. But long before Byzantium, even, there must needs have been a colony of some sort in such a spot of earth as this, and the first building on it of human habitations may have been of the "stone age," and by rude men who have left no record. But we have here to deal with the immediate present, and to find out, if possible, what there is artistically of worth, and how far it is to be regretted, if it should by any cause disappear without due record being first made of it. Many an antique city has thus disappeared, and how much has the world lost thereby?

It would be difficult within a short notice to give an adequate idea of a place so different from all things about us. The total absence of churches, bells, and clocks, to begin with. The Moslem divides his day and night into twenty-four hours, it is true; but *his day begins with the sunset*. An hour after sunset it is one o'clock, a somewhat awkward but certainly very natural way of noting time, the sun-setting being sufficiently remarkable everywhere. It is at sunset, therefore, that the "call to prayer" is made from the galleries of the mosque minarets, and not at any one stated or set hour, and is thus made not a little significant. The absence of churches and clocks, therefore, must make the city strange if nothing else did so. Then there is,—what, indeed, was to be expected,—the narrowness and tortuous character of the streets and ways, where anything in the way of plan or arrangement never could have crossed the minds of those who built the houses or dwellings which line them. They can only be compared to the irregular way across an uneven field, with cottages built close to the edge of it, as the traffic across got year by year to be thicker and thicker. Each street of the city is a perfect zigzag, and a straight line is not to be found. Indeed, there is a total absence of "planning" in any sense. From east to west the city is about three miles and a half, while from north to south it is about three miles. The Golden Horn divides this main part of the city from Galata on the north; while the Bosphorus divides it, as we said, from Scutari. It is necessary to note this, as the Bosphorus is half a mile wide in parts, and the Bosphorus is more than a mile wide, so that there are, in fact, three towns, all of them making up the city. A finer site for an imperial city there could not be, nor a happier combination and grouping of natural surroundings. It is walled on the west or land side. We are here interesting ourselves more especially in this city as an Oriental city, and do not touch on the "improvements" going on, which will no doubt in time do away with its special character. It is in the narrow streets, in the strange-looking bazaars, in the inns or "khans," and in the mosques, and in all that which improvement will do away with, that the real and individual and Oriental interest of the place lies; and if not worth the keeping it is at least worth keeping the remembrance of, and thus to remind the world that very much of it yet exists.

As to the streets of Constantinople, as we have

already hinted, they will but just bear the name,—they are rather long and crooked lanes, with low, timber-built houses; and, contrasted with like streets here, with straight and uniformly-built lines of brick-built small houses, would look but poorly. Much is sacrificed, doubtless, to the picturesque in the streets or ways of Constantinople. An Oriental "bazaar" is but little else than a covered-in street, with the goods exposed on either side of it, and it needs sunshine,—and powerful sunshine, too,—when a ray here and there does the work of the broad and evenly-distributed daylight elsewhere. Thus the elements of the "picturesque" always are here combined in full force, and it is no wonder that such a city, however strange and outlandish it may appear to many, makes the impression that it always does. It makes a powerful appeal to the artistic eye, and blinds it to all defects.

We must not forget the "fountains," those wells and springs of living waters for which nothing can make up in a sunlit spot. Here in Constantinople they are especially appropriate and grateful, and it is to be hoped that "improvement"—the at times too eager spirit of improvement,—will pass them by. The great aqueduct here, built by Adrian, which supplied the cisterns, was repaired and added to by Solyman the Magnificent. It may here be noted how the ways of men change as the world progresses. In the rough old days of it, all that possibly could be seen was left visible, as in these aqueducts and flowing water-ways. Now the effort always is to hide such utilities as far as may be, and if not that, to disguise them in some way or other. A raised cistern of water here, and now-a-days, as at a railway-station, is simply a square unsightly iron box, put as much as possible out of sight. In the old days of the world, in Classic times, and under Oriental management, these utilities were and are beautified, and made to show themselves, not as a something else, but just what they are. "Improved" Constantinople will, and must needs be, full of such improvements, but such improvements will do away with all that which once filled their place, and helped to give the city its special character. The old "Serai," it may here be noted, must yet contain a mine of precedent, and may be, as the new Serai at the mouth of the Bosphorus supersedes it, a fair example of an Oriental and royal abode, and in parts, at least, in its original state. Parts of it in neglected places may be as well worth the looking at and study as the Spanish Alhambra itself.

It would seem a pity, therefore, that some vigorous effort is not made, before it is too late to do anything, to get systematically at the many curious and out-of-the-way antiquarianisms of this really remarkable and exceptional city at its present,—its past remains, and antiquities, whatever they may be. It would well reward any well-to-do society to effect this, even partially. A correct plan or map of the city would be not a little interesting, showing the places of its public buildings, and the ways and turnings of its many and nameless streets and lanes. We need but hint at the interest to be found in its nobler buildings, whether originally Pagan, or Christian, or purely Mahometan, all things in Constantinople being, as we are assured on all hands, in a state of half ruin and neglect: we must needs find, in consequence of this very neglect, the *bona fide* work itself, ruinous and neglected and uncared for may be, but in no other way altered or changed. Indeed, it is in such a place that there may be seen the hand-work and the "writing" of the original artists and workmen, rude and in condition of ruin, but true and genuine. The city of the Sultan must needs, like all earthly things, pass away in time, and give place to the new, but a true record and remembrance of it may be useful, even to those who may have to rebuild it in another style of art, and under such different conditions, and in so widely different a phase of the world's history from that in which this Oriental city has until these days existed, and was founded.

Suggestion for Paris.—Those who are commencing the construction of the International Exhibition building in Paris should recollect that a good many cases of typhoid malarial fever, at the Exhibition in Philadelphia, caused by the confessedly bad drainage of the grounds, have occurred among those who are employed about the grounds and buildings day and night, particularly among the Centennial guards. Even exhibitors who are in the building during the day only have not escaped.

ART AT THE LIVERPOOL CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION.

At the first day's meeting of the Art Department (the 12th), Mr. E. M. Ward, R.A., in the chair, the special question for discussion was, "What are the best Methods of securing the Improvement of Street Architecture, especially as regards its Connexion with Public Buildings?"

Mr. J. J. Stevenson, who read the first paper on the question, said he was unable to fulfil the object proposed of discussing the influence of architecture, or of any other art, on the civilisation, education, or industrial development of the people; for art of any kind was best cultivated for its own sake, without *arrière pensée* of moral or utilitarian results, and was worth cultivating, even though it should not further develop our industry or create an increased demand for our manufactured goods. He should, therefore, take for granted in the discussion that art, like virtue, was its own reward. Mr. Stevenson having expressed his intention to confine himself to the subject of street architecture, without regard to public buildings, proceeded to describe our modern street architecture, tracing its different phases, and especially pointing out how the architectural appearance of our streets has been influenced by the requirements of ground landlords, by Building Acts, and by municipal regulations. Mr. Stevenson spoke with emphasis of the feeling of depression which the monotonous architecture of modern streets produces. Everywhere we found the same dull monotony of sad colour, the same weary repetition for miles of one design for door and windows, the same interminable straight line of street without break of skyline, or the slightest turn to give light or shadow. But in an old town, if it had not been improved and modernised, every new turn made a new picture: every house had its own identity, marked by some pretty feature of carved door or projecting window, or fantastic gable, looking as if each man had built his own and had taken pleasure in it. The present monotony in street architecture became common in the last century, when the prevailing style was that of Wimpole-street, "the long unlovely street," as Tennyson calls it. In this century, this style having been felt to be too dull, ground landlords insisted on bright colour and more ornament, and the "palatial expedient" was adopted, but failed. Mr. Stevenson condemned the modern practice of using stucco and cement for columns, windows, and cornices, and declared that the general result was the most dismal which the art of architecture had yet attained in the whole course of human history. But the reign of cement and stucco seemed over. The latest phase of street regulations was to allow red bricks only for the fronts; but several houses had lately been built in London in which people had freely followed their own taste in design, with the result of producing some excellent specimens, which gave interest and beauty to our streets. The advantages of freedom would, of course, depend much on how it was used. It might give opportunity for exhibiting ignorance and vulgarity; but he preferred freedom, with its risks of going wrong, to the safety of despotism. To build streets irregularly, with gentle curves and angles, was, of any single proposal, that which would most improve our street architecture. As to colour and materials, it was a pretty safe rule that they should not be such as would get to look dirty, for our new streets were mostly built in smoky, thriving neighbourhoods. Happily, good colour was not dependent on grand and expensive materials, but on a right use of the simplest.

Mr. W. H. White read an able paper on the same subject, and which we printed in our last issue.

Mr. Geo. Godwin (responding to the chairman) said that both speakers naturally enough had, as part of their reply to the special question, said, "Call in an architect." He would occupy the few minutes allowed to a speaker by commenting on some recent observations made by a distinguished scientific man, which bore forcibly on the question. He had recently received the report of an address delivered by Professor Huxley on the occasion of founding the John Hopkins University in Baltimore, wherein he had read, he must confess with some indignation, the following remarks:—

"If I may venture" (said Professor Huxley) "to give advice in a region which goes out of my proper competency, I would say that whenever you do begin to build, get an honest bricklayer, and make him build you just such rooms as you really want. And a century hence, when you have built all your laboratories, endowed all your

professors, and have the finest library that can be imagined, then if you have a few hundred thousand dollars you don't know what to do with, send for an architect, and tell him to put up a façade."

Now this, the speaker maintained, showed great want of judgment. Did Professor Huxley really think all the varied arrangements necessary for university buildings could best be made by a bricklayer? Was a century hence time enough to make such buildings fitting, decent, and delightful? Look at the mischief such an observation did. If a great university was not to send for the man of culture and taste, was not to think of beauty, still less need an individual do so. This sneer had been sent far and wide through the States, and would work evil. It was an example of the insolence (he did not use the word in an offensive sense: he had the highest respect for Professor Huxley) with which pure science was too ready to treat pure art. Putting aside the questionable emphasis on "honest bricklayer," he was ready to maintain that beauty was of the highest kind of utility. Moreover, he believed, as quaintly said by Spencer, that by the study of the beautiful, some might—

— "Lift themselves up hither,
And learn to love, with zealous humble duty,
The eternal fountain of that heavenly Beauty."

Mr. Charles Larpent, in continuing the discussion, contended that, as regards architecture, utility is the only beauty. In the finest Greek buildings there was no single feature contributed for the purposes of what is called pure beauty, and the character of the architecture was rectilinear. He quoted, with approval, the saying of wise old Fuller—that houses should be built to be lived in, not to be looked at.

Sir Walter Stirling controverted the opinions of the last speaker, and remarked that the chief aim of the architect should be to exercise his skill in combining beauty with utility.

Miss Becker said that, as coming from Manchester, she might, perhaps, be allowed to say a word or two in reference to what had struck her as an interesting and valuable suggestion, viz., that public buildings in great towns should be made of some material that would wash. It was, in manufacturing towns, a great pity to see beautiful work and beautiful material placed in a situation where they must necessarily become blackened and spoiled in the course of a very few years. At a corner of one of the streets in Manchester was a statue of John Dalton, which was originally of pure white marble, but now had the reputation of being a bronze statue. The Corporation of Manchester had lately erected a magnificent town-hall, and had put upon the façade four elaborately-carved stone statues. Now, there existed an Act for preventing the nuisance arising from the black smoke of the manufactories. This Act had been allowed to become a dead letter in Manchester, but, happily, the Corporation, in order to prevent their new town-hall being spoiled, had resolved to put it in force.

A few remarks having been made by Mr. Douglas Galton, there was a short adjournment for luncheon. On the reassembling of the section, the discussion was resumed by

Mr. Traice, of Manchester, who defended Professor Huxley from Mr. Godwin's criticisms, and expressed his opinion that the Professor did not intend that his remarks on the occasion in question should be taken literally, but *cum grano salis*. Those who knew Professor Huxley knew how a sly twinkle of the eye qualified remarks which, if taken seriously, would be open to animadversion.

Mr. Storr, of London, referred to the cases of Liverpool, which had built St. George's Hall, and Manchester, which was building its new town-hall, where the local government of a very large area, and having command of very large resources, were making the best use they possibly could of the existing architectural skill of the present day. They had operating upon that local authority the moral and social pressure that had been spoken of. These two illustrations furnished, in his opinion, the only practical clue to anything like a radical reformation in regard to street architecture, and particularly in regard to public buildings. What they wanted in London was a form of local self-government which should have the confidence of the people, and then they would have that moral and social pressure by educated people and producing the results they were all aiming at.

Mr. Stevenson, replying to the discussion, took occasion to speak of St. George's Hall as one of the noblest and greatest buildings that had been produced in modern times. It seemed somewhat

singular that a building like that had not had more influence on the architecture around it, and especially that its noble and grand simplicity had not been imported into buildings recently erected in its neighbourhood.

The Chairman said it had given him the greatest satisfaction to preside on that occasion, although in the character of a *locum tenens*. It was the first time that an Art Department had been organised in connexion with the Social Science Congress, and he felt that anybody especially connected with art ought to give his sanction to or endeavour to be present upon so important an occasion. It had been unfortunately the custom of this country to consider art as a very secondary matter. He had attended a great number of public dinners, and he had always found that the toast of "The Fine Arts" was placed at the bottom of the list. He was satisfied that the formation of that section was a very desirable thing in the interests of art. With regard to what had been said as to Professor Huxley's remarks, he quite agreed with Mr. Godwin that those remarks were very unwise, especially when addressed to a people even less informed as to art matters than those of our own country.

Mural Decoration.

On the 13th, Mr. Poynter, R.A., presided. The special subject for discussion was—"How best can the Encouragement of Mural Decorations, especially Frescoes, be secured?"

The opening paper was read by Mr. W. B. Richmond. In answering the question, Mr. Richmond showed that in all great artistic, poetic, and philosophic nations this section of the fine arts had been looked on as of prime importance, and had received encouragement both from public bodies and from private individuals. He then endeavoured to point out what would be the best training for students in our local art schools. They should be prepared, in the first place, to assist masters in the art of mural painting in all its branches; and, in the second, the education should be of such a thorough nature as would enable these assistants ultimately to become masters. He also described methods of painting which he contended were adapted to mural decoration of the highest class, and in which every confidence as to durability might be placed. Mr. Richmond said that what was wanted, first and most of all, was that the mental level of the art student should be considerably raised. It should be impressed upon him that his pursuit is a very serious one, and that to excel in it requires just as much mental culture, self-command, and self-control, as in any other of the learned professions. With few exceptions, the greatest paintings of the world were mural, and the greatest minds in art had generally adopted either the method of tempera or fresco on walls on account of its rapid process, luminous quality of colour, and durability. One advantage of this style of art was that it obliged the architect and builder to design and construct in a dignified, solid, and thorough manner, and stimulated the designer and executer to produce a work which should be perfect in all its qualities. Until mural decoration on a large scale was encouraged in England, we should have no real, living, national art, nor, indeed, any school of painting of the highest order. He urged the establishment of an elaborate system of teaching and study, and in conclusion he compared the various styles of mural decoration throughout the world. In England, he believed, frescoes had failed owing to the fact that they were not for the most part really and truly frescoes, and that certain colours were used which would not compose with lime.

Mr. Cave Thomas then read a paper on the same subject, to which we shall return.

Mr. J. C. Horsley, R.A., in speaking on the question of the State patronage of art, said that that great friend of art, the late Prince Consort, had often remarked to him that it was to the corporate bodies of England that he looked for the encouragement of modern art. He (Mr. Horsley) agreed in the main with what had been said by the previous speakers; but he could not forget that four of England's greatest painters, Hogarth, Reynolds, Gainsborough, and Turner, rose to eminence without the benefit of that severe scholastic training which those two gentlemen had so warmly advocated. He, however, admitted that if mural painting was ever to take root in this country, it must be by means of such a course of training on the part of art students. He was sorry to say that he believed climatic influences, and the smoke and fog of towns like

Liverpool, were entirely destructive of fresco painting. Mr. Horsley referred, in support of this opinion, to the decay of the frescoes in the Houses of Parliament, and said that some frescoes he had executed in exactly the same manner, and with the same materials, in a house in Norfolk, were now in as perfect a condition as on the day they were painted. He could not forget the deep indebtedness of English art and artists to Lancashire during the last forty years. If Liverpool was going to take a still wider view of art, and to encourage mural painting, he heartily wished them God speed, and he could assure them they would have the support of every artist in the United Kingdom.

Mr. Leighton, R.A., said that as long as the English public gave themselves up to the seductive charms of realistic art there was very little hope that the severe style of the great heroic works of antiquity would receive encouragement.

Mr. Ward, R.A., said he should not despair of oil being used for the purposes of decoration.

The Promotion of Art an Economic Necessity for England.

Mr. P. H. Rathbone next read a paper on this subject. He began by remarking that the spread of machinery, supplanting the labour of unskilled workmen, was yearly increasing the demand for skilled and educated handicraftsmen, whilst in a few years England could not hope to retain the comparative monopoly of cheap manufactures which her coal-mines now give her. If we were to retain our trade it must be by paying more attention to the quality than to the quantity of our goods. In this strait art alone could help us, so that few would be inclined to deny the services it might render to commerce. As an example of what might thus be done, he then cited Paris, which, with neither coal nor water-power within reach, yet supports an enormous population as a manufacturing town. That Paris is the capital of France did not sufficiently explain this, for Washington is the capital of America, and history shows that France has done little for Paris compared to what Paris has done for France. The great power of the Parisian workman is that he is artistically educated beyond the work he is actually doing; he has, therefore, an ideal of perfection towards which he is always striving. He has a pride in the work he is doing, which prevents its becoming mechanical, and gives it a pecuniary value not otherwise attainable. He did not think the French were naturally an artistic nation, except in the great centres, where a love of art had been created and fostered by Government institutions. An art education gave to the workman and manufacturer the power of adapting their productions so as to provide for that thirst for novelty which was, in truth, the necessity of an inquiring age and a progressive civilisation. The economic advantages of taking the lead in this way might be even more strikingly illustrated by Lyons. The colours, shades, and even the fashions for the coming year were said to be designed by a council of bald-headed old manufacturers, whilst all others were a season behind, because, owing to the want of art education in themselves and their workmen, they were only fit to follow; not to lead. Rome, in a somewhat different way, was an instance of the same truth, for with the additional disadvantage of unhealthiness, it yet supported a large population by art manufactures. Turning to our own country, it would be found that, in spite of many advantages we had over Lyons, the silk trade of Spitalfields had declined through want of art-education in those connected with it. The decay of the straw-plaiting industry of Dunstable might also be attributed to the same cause. A more cheering view was the rise and progress of ceramic manufacture in England, much of which might be traced to the greatest of all potters, Josiah Wedgwood, and to the Great Exhibition of 1851, aided by the establishment of South Kensington Museum. The rise of the artistic glass manufactories of London, whether as regarded stained glass or table glass, was distinctly traceable to the same causes. The improvement in art-furniture, for which Mr. Morris had done so much, was most gratifying. It now only remained to discuss what had still to be done. For two reasons it was most desirable,—first, that all our handicraftsmen should have an artistic education, as the rapid spread of machinery made daily work less and less of an education; and, secondly, that it was more than ever necessary that our workmen should attain that flexibility of mind which only an artistic education could give, and which would prepare them for that change of

employment which the changed circumstances of the country might make necessary. Carving in wood, as practised by Norwegians and Swiss, modelling in clay or wax, would all be within the compass of mechanics who, with considerable leisure, were yet too fatigued with their day's work to be capable of much brain-work, even if the early age at which their education terminated did not make reading too great an effort to be a relaxation. This, if it did nothing else, would create a sound public opinion on art-matters which would keep our sculptors in order. If a taste for mural decoration was once widely spread in England, many men who now paint namby-pamby green lawns in water-colour might devote their time to making the houses of wealthy citizens so beautiful that they would be loth to leave them, and so give an element of fixity to the richer population of our great commercial centres which is much required, and which would give a living interest to the owners of houses who saw a work of art growing under their eyes which would not otherwise be aroused.

Mr. Traice said one point seemed to have escaped notice, and that was the training of the public mind to appreciate the things referred to. There was no doubt that if the public love of art was to be developed in this country as in Italy, it must spring from the people and from their institutions which fostered a taste for it. Until the people had such an appreciation of art and general good taste and judgment, they could not expect to attain the position in art they desired. He advocated the training of art workmen, and said this was one of the most important problems which the Congress had to consider. In conclusion, he said the schools of design had not done the work for which they were intended.

The discussion was continued by Mr. Stevenson, Mr. Lindsay (Belfast), Mr. Andaley, and the President, after which the section adjourned.

THE INFLUENCE OF ART ON A NATION.

In the Art Department of the Social Science Congress at Liverpool, on Saturday, Mr. E. J. Poynter, R.A., president, delivered an address.

Mr. Poynter began by saying that he found himself under the necessity of attempting, if not the solution of the question as to the effect of art upon our social system, and whether the influence of a general spirit of art were really for good, as he believed it to be, at least of bringing to their consideration the conditions under which alone art might be expected to produce that influence. It was true that on the special questions of decoration Mr. Charles Eastlake, who had made a special study of the subject, would read a paper; but although a matter full of interest, and in the highest degree worthy of attention, it could but touch only in a slight degree on such a general question as he (Mr. Poynter) had proposed, and which, put more fully, inquired in the first place, "Would the universal extension of a spirit and love of art—such a public spirit as should exact of our artists, manufacturers, and workmen that all their productions should be of the highest character for workmanship, skill, and taste—contribute to the general welfare and progress of the nation?" And in the second place—"To what extent can the cultivation and practice of art be made to take such a hold on our national life, and so permeate all classes of society, that such an end may be brought about, and that the national sentiment shall not permit of the making or exhibition of anything false in principle or offensive to taste?" And thirdly, "How can such a state of things be created?" for it certainly did not exist at present. From those who held with him that the very essence of good art was to be found in honest and good workmanship above all things, the answer to the first of these questions would doubtless be that a general diffusion of a sound artistic spirit would be an unmixed good, but they knew that opinions were sharply and strongly divided on that point, since the ideas of material progress so much in vogue were in direct opposition to the very existence of an art founded on principles apparently so obvious. To calculate, therefore, on any general artistic sentiment becoming a part of our national life would seem more hopeless now than ever, and before it could happen our national characteristics must be changed, and our beliefs in the efficacy of much that was thought essential

to the progress and enlightenment and happiness of mankind must be eradicated. He would not philosophise on the question, however, but took for granted, what most persons present would concede, that the influence of a genuine art must necessarily be an influence for good. They still had before them the difficult question as to how such an influence was best to be diffused so as to take a hold of the nation at large. And first it would be necessary to inquire how far it was possible to diffuse such an influence. Was there any possibility of a genuine love of art taking such hold on people generally that it should seriously affect their habits of life? Was it possible, for instance, ever to recover amongst us the feeling which is now extinct, but of which a faint tradition lingered perhaps as late as the Great Exhibition of 1851, that it was not worth while to make furniture that would come to pieces, or to build a house which would not need repair for at least a reasonable time? In former times bad work was the exception; now it was the rule; and a piece of well-made furniture or a well-built house was an article of luxury, and must be made or built by specially trained hands. If the question was asked—Was the return to the time when every workman was also an artist possible? he would reply that it was not, under existing social conditions. That feeling of love of good work for its own sake, and of pleasure in bringing it to perfection,—which was, perhaps, the most certain evidence of genuine artistic spirit,—was not, in former times, the property of a few individuals distinguished by superior gifts and education; it was the common property of all handicraftsmen, whether possessed of original talent or not. He did not for a moment pretend that such a spirit as this had ever risen in this country to the dignity of national sentiment. At no time did he imagine that a cheap or easy mechanical substitute for labour would ever have been refused on artistic grounds. That such a state of national sentiment had existed in the world was indubitable. We had the evidence of everything that had come down to us from the best times of Greek art, that nothing short of perfection was tolerated among them; nay, more, that they were possessed of a critical faculty which would seem to have surpassed our own, so that their trained and cultivated perceptions were satisfied with nothing less than a subtlety of form and proportion, the advantages of which to our coarser senses seemed inappreciable. The Greek idea of art was not merely in adornment: it was, above everything, in completeness and consistency. It was melancholy to turn from such a state of things to our own times and surroundings, and it was only too clear that we must be content with aiming at something very far short of the Greek ideal of art in our own social life. Even then we must be satisfied if we got a tithe of what we desired. This was not the occasion to inquire into the causes of the high standard of the glorious epoch of Greek art, but it was necessary to point out, however, that they can never be repeated in the world's history. The very perfection to which mechanical methods of production had been brought, and which raised works of mechanical skill almost to the level of works of art in their wonderful precision and finish, had given the death-blow to true artistic workmanship, the charm of which lay as much in the individual character given through the skill of the workman as in the invention displayed. What was now required of the skilled mechanic was not so much that he should understand how to make any particular object, as that he should know how to manage the machine by which it was made. It was useless, however, to deplore and rail against the invasion of mechanism; it would be far more worth while to see how far it can be made subservient to the principles of sound art. There could be no doubt that the worst of the eye-sores which the progress of civilisation had inflicted on our unhappy cities are the products of the art or science of engineering. That whole districts should be given up to desecration in the large towns through the invasion of railways and their appurtenances was probably unavoidable, but that a few spots favoured by picturesqueness of grouping or real architectural beauty should have their charms destroyed at one blow by some railway bridge or station, showed an amount of heartlessness on the part of the engineers who constructed them, and the public who permitted them, which would surprise us, did we not know that a large section of the community admired in their hearts what was supposed

to be a fine practical preference for utility. After remarking that perhaps the most glaring results of this feeling were to be found in London, Mr. Poynter went on to say that it seemed to him neither necessary that iron railway bridges and stations should be as ugly as they were, nor that the only alternative should be, as was the generally-accepted idea among those who made them, an imitation of unsuitable architecture, or that they should be adorned with inappropriate ornaments, by way of beautifying them. A notable instance of this misconception was afforded by the bridge that was built over Ludgate-hill. It was probable that the offensive form of construction that was placed there was the cheapest form of bridge that could be made. Of that he was no judge; but he was sure that an engineer who had but a little ingenuity beyond what was required for the calculation of strain and cost might have invented something which, in its original form, should have been less offensive to the eye. The view of St. Paul's up Ludgate-hill, with the small spire in the mid-distance, making a composition of the kind that delights an artist, and at the same time giving dignity by its slender proportions to the imposing mass behind, was heightened in effect by the framing of a busy and picturesque street, and seemed to unite every point that is characteristic and interesting in a great city; and the public in this case resented the offence to taste, so the company were obliged to spend a large sum of money in covering the bridge with ornament, which it was impossible could be otherwise than both unsuitable and useless. A very moderate quota of the national sentiment which he had alluded to as the property of the Greek nation would have prevented the possibility of the erection of this bridge in such a spot. He had said the use of iron was a necessity of modern engineering works, but he had no hesitation in adding that when they were obliged to intrude themselves on places already made beautiful by fine architectural features, the public and the authorities responsible to it ought to insist on the work being in harmony with the surroundings. In such a case as this an iron structure should not have been permitted at all. But there were situations where the use of iron structures was not only a necessity, but need be in no way objectionable. They had there in Liverpool a construction of which they were justly proud. The landing-stage, in the ingenuity of its structure, its admirable fitness for its purpose, and the excellence of its workmanship, combined with the picturesque accompaniments of river life, might be rightly considered in the light of a work of art; but its effect was marred, to his mind, by the ugliness of the iron bridges which connected it with the mainland. It was not too much to say that there was not the least need for their ugliness: a little more ingenuity spent in their construction might have made them not only inoffensive to the eye, but agreeable to look at. There were here no architectural features in the immediate neighbourhood; the surroundings were the wharfs and docks and warehouses, which were the glory of a great commercial city, and which had a character of their own. Any attempt to have made these bridges architecturally beautiful would not only have been out of place, but would have been wasted in such a spot; but he could quite imagine a method of constructing such works which should combine strength and lightness and elegance, without going outside the conditions and necessities of iron structure. But it gave, of course, less trouble to an engineer to make a square iron box which should be strong enough to bear the traffic, than to go out of his way to design something less objectionable. If anything of an ornamental nature appeared necessary, he was saved any further consideration by handing it over to an architect or artist to plaster with ornament. He (Mr. Poynter) would draw this conclusion, that engineering being distinctly an art of the present and the future, made up of different materials on different principles and under different conditions to any that have hitherto existed, if it was ever to have any beauty of its own, or, to put it more hopefully, if its results were ever to be less objectionable than now, it must be by seeking for such results within the necessary conditions of its existence, and not by the addition or superposition of an utterly unsuitable style of ornament drawn from past ages and a different order of things. In short, the exercise of ingenuity in work of pure utility might be made to occupy the place filled by decorative and ornamental design. Regarding works of art, properly so called, however, and those

works of manufacture in which decorative art played a more or less important part, the conditions were different. Here part of the beauty and charm would be derived from the beauty of the workmanship and the individuality given by the mind and touch of the workman—a phase of beauty to which mechanical production was death. What was it that we admired in Japanese art? No doubt the marvellous and inexhaustible fertility of invention, and the perfect rendering of natural forms; but if possible, still more, that exquisite workmanship which surpassed anything that European hands were capable of. Or, to confine ourselves to European art, wherein lay the beauty of the old Venetian glass goblet, which had the elegance and fragility of a harebell in its stem, and almost its fancy-like lightness? Doubtless, in the first place, with the beauty of its design and the delicacy of its material; but did it not owe an equal charm to the taste of the handicraftsman whose skill had triumphed over the extreme difficulty of producing a perfectly beautiful form in a material requiring such rapid and dexterous treatment as molten glass? How much of that skill of hand and eye was required by the modern glass-maker or potter? His business was not to use his discretion or his natural taste in giving elegance to the form of the glass or pot he was making, but to manage the mould out of which thousands of exactly similar objects were produced; and that the manufacturer believed that a mould was a much better way of producing forms than making them by hand was certain. To an uncultivated eye the effect might be equally good, and to save labour and produce in quantities might be equally good; but the original charm had disappeared. The delicate fabric had become a mechanical production without life, made probably at a tenth of the cost, and with a tenth of the labour, but which, as far as the artistic value of its "diamond moulding" went, it was unnecessary to make at all. He was not so foolish as to suppose that mechanical reproduction could be done away with; it was part of the necessity of the times; it was certainly a result of our material progress, which we could not go back from; but, as he had already said, the conditions under which everything that was made before the introduction of machinery was, in one sense, a work of art, could not be repeated. All he should wish to be understood was, that they must not delude themselves into the belief that they could produce works of art by the substitution of machinery for hand-labour, or that the decoration of objects of common utility, by a mechanical process, could ever have any artistic value, and they would have made an immense step in advance if the public could be persuaded that it was better to have no decorations at all than such as were purely mechanical. A strong feeling for the higher forms of art had never existed in this country; or, he should say, rather, the artistic faculty had never in our race, of its own accord, leaned towards the higher forms of art. Except in architecture, we had never produced any works of higher art, we had never had of indigenous growth anything in the shape of those schools of painting and sculpture, and metal work, which sprang out of the native soil in Flanders, to say nothing of Italy. All the higher forms of art had been imported into England either by foreign artists coming to work for our native princes, or by men of taste and culture. Until within the last hundred years there was no such thing as a school of painting in England at all. But there did exist in England until lately what, indeed, was common to all the world,—the sentiment and tradition of excellence in such more homely forms of art as were applied to household furniture and fittings; and such a feeling took, of course, an English development, which gave its own character to the work produced. Except in a few solitary cases, to which he would refer, it might be said that an object of industrial art was never now produced which was satisfactory to the cultivated eye from every point of view; and what he desired to point out was, that it was only through the determination and energy, and a certain amount of self-sacrifice, on the part of those who were capable of directing the public taste,—that was to say, of artists and men of culture,—that an improvement could be considered possible. There had been great efforts in this direction made of late years by the firm of which Mr. Morris was the head, and if he referred to the work Mr. Morris had done, it was not with the object of bringing his name forward, but because he had a firm conviction that

it was only by such life-long devotion on the part of artists themselves that the degrading tendency of mechanism and all its accompaniments could be counteracted. There were other ways in which such a devotion might be shown amongst them—by the voluntary education and training of students, and in other ways. The French set us a noble example in this respect, for many French artists had an *atelier* where students worked, and to whom the artists devoted regularly two mornings a week without receiving any payment. The custom showed a love of art for its own sake, to which we could hardly find a parallel here. Speaking of the art-education of children, Mr. Poynter said it was not to be expected that the teaching of the rudiments of geometry and perspective and elementary freehand drawing to many thousands of children would turn them at once into artists, or even give them any artistic instinct; but it would act as other elementary education acted—it would give a chance to natures which might otherwise remain undeveloped. But in itself the learning of geometry and freehand drawing could no more be called studying art than learning the alphabet could be said to be studying literature. Both were the necessary preliminary stages for a higher culture. Speaking of the means for promoting art education, he alluded to the art schools, and added that a constant effort was being made so to arrange the Government payments to the masters that there should be the necessary inducement to lead their pupils from one stage to another, a matter which would be easy enough if the supplies were unlimited, but which was difficult when they had to be kept within bounds. It was in this way, however, that he hoped the influence of the vast machinery of the Art Department might be felt—through the chances given to children to turn their attention to art if their inclinations were in that direction; through the inducements to study offered by art classes and schools; and through the final inducements to enter into training at South Kensington as art masters, that in examinations they might diffuse their knowledge through the city. The system had its disadvantages, no doubt. According to the direction which the instruction took, its influence would be equally strong for good or for evil, and herein lay an immense responsibility. But there was another great piece of machinery which had no such risks, and by which the truest principles of taste might be diffused among all classes—through the institution and formation of museums. Here again, however, they must not deceive themselves as to the influence which they would exercise. Without previous culture, no one was likely to appreciate a work of high art; the richness and splendour of workmanship and material in a cup by Cellini would please an uneducated eye, but it needed a long apprenticeship in general and special study for the appreciation of the exquisite taste and fancy which had guided the artist. Mr. John Morley, in a speech on education lately delivered, had asked why the collection of Castellani jewels at the British Museum should not be sent to Birmingham to improve the taste of the jewellers. If it were in the least possible that the goldsmiths and jewellers would take to heart the lesson which those wonderful specimens of Greek art taught them—a lesson which he (Mr. Poynter) had tried to indicate in this paper,—namely, that exquisite workmanship was the essence of fine-art manufacture, and in jewelry, above all things, then no risk, perhaps, would be too great to run in the cause; but it was far too probable that the only result would be a "cribbing" of a few of the forms to produce a novelty, and the executing them in a coarse and barbarous manner. But museums had another important function—the preservation of relics of antiquity, which, if lost, neither money nor labour could restore. The collection and preservation of objects of art could not but have a refining and educating effect on those whose tastes were sufficiently raised by cultivation to appreciate them; and to supply local museums and art schools with the best specimens available was one of the most important duties of the South Kensington Museum. He could see three ways in which the influence of art might be brought to bear on our social system,—through the return, if only partial, to the bygone excellence of workmanship; through the spread of education; and by affording art students, throughout the kingdom, the opportunity of seeing fine works of different periods and styles. We should not deceive ourselves, however, as to the extent to which public taste might be influenced through these means, for there was an immense mass of

the people of all classes who were wholly indifferent as to whether their surroundings were ugly or beautiful, and who thought only of their personal comfort or luxury. Those who were really interested in art formed but a very small portion of the whole mass of the nation, who were for the most part animated by other interests, indifferent to, and in many cases opposed to and irreconcilable with the interests of art. It was encouraging to remember, however, that at no part of the world's history, except during the cultivation of Greek art, had a nation been wholly artistic. In Italy, even at the best time, the mass of the people were probably indifferent, and the love of art was confined to artists, artificers, and the cultivated class. Although he did not see the possibility, under existing conditions, of so complete a diffusion of taste for art among us as would make us an artistic race, yet there was no reason why it should not be the property of the cultivated class, and of all art workmen, as it was in Italy; and it was to be remembered that the spirit of art would of itself assist in the increase of this cultivated class, and in the spread of the cultivation by which it lived. "I have not," said Mr. Poynter, in conclusion, "entered into the question of painting, which is, as far as the imaginative powers are concerned, of course the highest and most important branch of the art; in the first place, because I have so often lectured on the subject, and in the second, because there is a fear, through the high marketable value of pictures, that all the best artistic talent of the country is rushing in that direction, and I was anxious to give prominence to the social and economic side of the subject. There is, however, no reason why this great art should not take here as high a place as in any country.—I might almost say as in any time. The English, if they have not the marvellous technical facility of the French, are far superior in poetic feeling and imagination; and the independence of thought which has in some respects barred the way to the formation of a definite school in England is combined in our national character with much readiness to learn from other countries. If we can only acquire sufficient love for art to enable us to resist the enervating influence of an indiscriminating public and a too ready market, the art of painting may receive amongst us its highest development."

HEALTH QUESTIONS AT THE SOCIAL SCIENCE CONGRESS, LIVERPOOL.

Noxious Vapours and Smoke.

THE special question was,—“What Amendments are required in the Legislation necessary to prevent the evils arising from Noxious Vapours and Smoke.” The section met under the presidency of Mr. Thomas Hawksley, C.E.

Dr. Angus Smith (Manchester) read a paper on the subject. He said that the progress of chymical manufactures, and the alkali manufacture pre-eminently, were intimately connected with the progress, civilisation, and refinement of the country. It was said that these manufactures destroyed crops, trees, and vegetation generally, and the charge was not without foundation. In 1863 the capital of the alkali trade in the kingdom was equal to about 2,000,000*l.*, the total amount of salt used being annually 254,000 tons; now nearly that amount was used in the crowded collection of works at Widnes, whilst that was only 39 per cent. of the total used by the whole trade. It was needful to consider the actual nature of the damage done to the land. They must remember that that was not a money loss, except perhaps in a few cases. He had never heard of any piece of land selling at a diminishing rate because of chymical works in Lancashire, but he had heard of a great deal selling at a much increased rate. So far as could be made out, under the new Act crops had suffered very little, and in places where they used to suffer there were no complaints this year. Landowners might still, however, say, “We know you do us good by increasing the value of land, but why do us evil, to counteract it?” Said all the chymical works to some corner by themselves and let them rage together.” Such a proposal might once have been reasonable, but it was now out of all question. It was completely made out that the sulphur acids from chymical works now far exceeded the muriatic acid. The sulphur from common coal was, a very large quantity, and when chimneys were numerous and near, the amount given out was very destructive, so that, for example, near the centre of a town, such as

Manchester, trees would not grow at all. They burned about one hundred million tons of coal annually, and if it contained one per cent. of volatilised sulphur they had three million tons of the strongest vitriol poured into the air, most of it coming down on themselves and the land. The combustion of smoke, that was, of the black portion, was very desirable. It was known to be very easy in most cases, and the introduction of mechanical stokers was a duty in very many cases, probably for the majority of furnaces. It was very much wanted for the benefit also of the stokers, who, especially in sea vessels, were exposed to labour such as ought not to be given by a nation that rejoiced in putting down slavery. Condensation in alkali works was advancing so rapidly that it might even now be considered advisable that it should be completed in all new works from this time, and certainly so if the newer furnaces acted as they promised. The difficulties as to copper works were greatly removed, and it would be no hardship to insist that every copper worker should condense at least as well as Messrs. Vivian or Messrs. Newton & Co. did. They might then think of the gases of glassworks. At present he believed they were quite able to deal with those of potteries and cement works. The actual effect of any of these gases on the health of the population was not well known. They did not prevent to any known extent the existence of zymotic diseases, as some persons very naturally expected. The gases were not strong enough to prevent infection, and the total effect in a chymical town was not clearly known. In St. Helen's the mortality last year was 23.9. Still the evidence seemed to be against the gases, and very clearly in the case of the workmen. Gases, from putrefaction, were better known to be hurtful to health, but people did not avoid them so much, because they did not affect the senses so readily. It was better to prevent the formation of gases near them than to remove them when found. After giving a description of furnaces and various processes, Dr. Smith said all works giving out offensive gases ought to be put under inspection for a time, when complained of, and all those giving out the acids mentioned should be included under constant inspection. Certain facilities should be given in the case of actions for damages so as to include a number of persons as doing an injury, and persons should pay in proportion to the injury so far as could be ascertained.

Dr. Macadam (Glasgow) said that the only objection he had to Dr. Smith's paper was that it dwelt more upon persuasion than compulsion with reference to the consumption of smoke, and he thought a little compulsion along with the persuasion would be more effective in purifying the atmosphere.

Dr. Fergus (Glasgow) remarked that sewer gases found their way into all our houses in spite of any trap which had been invented; and these gases were sufficiently potent to destroy the lead soil-pipes between the trap and the house. He found that the trap of the closet was a small laboratory for the manufacture of a gas that destroyed the lead, and stated that none of the gases were kept out of the houses by what were called water-traps.

Dr. Andrews argued that sewer gases were often very injurious when no bad smell could be detected.

Sanitary Education of the People.

Dr. Hairland, on behalf of Mr. E. B. Ellice, Clark, read a paper "On the Education of the People with reference to Sanitation." The author remarked that, unless something was done by way of educating the masses in sanitary matters, all scientific research and practical teachings would be valueless. Sanitarians might labour for ever, with small results for good unless they had the assistance of the people. Individual responsibility should be taught and early insisted on, as little could be effected with the adult population. Through the School Boards there was an opportunity of inculcating knowledge at an age when it was rarely forgotten; and Mr. Clark suggested the necessity of School Boards having teachers who could instruct the young in such matters.

Health Lessons to the Poor.

Mr. W. Clode read a paper by Miss Lankester "On the Advantage of Health Lessons to the Poor." The authoress wrote on the necessity of popular lectures and lessons being given to the people, and especially to the lower and more

ignorant classes, on the laws of health. She dwelt on the success which attended the delivery of lectures to poor women in London on such subjects as "How to Manage a Baby," "What to do till the Doctor comes," "Drink and Water," "How to keep the Doctor out of the House," &c. Many of the diseases of infants were preventible, but very few women knew intelligently how to bring up their babies.

The Rev. Canon Warr said that from close perusal of most of the tracts published by the Ladies' Sanitary Association, he could say that they were far superior to, and more likely to attract attention, than many of the story-books that circulated in our streets.

Mr. Cooke Taylor made some remarks commendatory of the society of which Miss Lankester is secretary.

Miss Becker remarked, with regard to the ventilation of the dwellings of the poor, that they must not, in their anxiety for fresh air, overlook the deadly effects from cold.

Co-operative Housekeeping.

Mr. Collins read a paper by Miss C. C. Morfitt, "On Co-operative Housekeeping." The authoress recommended the system of co-operation among industrious persons of limited means, on the grounds of economy, comfort, and healthfulness. Plans, illustrating the way in which she would have the co-operative residences constructed, were circulated amongst the members of the section. In addition to the ordinary domestic offices and rooms, the plans included a billiard-room, four servants' rooms, skating-rink, laundry, dining-room, engine-room, bakery and pastry, starching and ironing rooms, &c. Such an establishment could be erected at the cost of 10,000*l.*, and would let to six tenants at a gross rental of 700*l.* per annum, and would thus yield a per centage of 7 per cent. for the capital expended. There should be nine servants, with wages amounting to 190*l.* a year.

Rational and Beneficial Amusements.

Mr. Francis Fuller read a voluntary paper on "The increasing importance of enabling and inducing the people to seek rational and beneficial amusements in preference to intemperance and vicious indulgence." He remarked that the last year had brought but too convincing evidence that whatever may have been the progress made by the School Board, however great the efforts to bring children to school, and whatever good effect these efforts may have in the future, depravity among our juvenile population was widely spread, and the fringe of the evil had scarcely been touched. No provision was made for the amusement and recreation of the young, which, he maintained, was not less urgent than the arrangements now agitating legislators and divines as to the safest mode of communicating useful information to the children of all classes. As to the working man himself, he found his amusement in the public-house, with poison for the staple of his pleasure, and ribaldry, blasphemy, quarrelling, and discord, its accessories. He urged that it should be the duty of the State to provide places of healthful, cheerful, and improving amusement and relaxation, as the policy of leaving such things to private enterprise had been carried too far. The time had come for the surrender of a portion of our national prejudice against governmental interference. As to the terrible incubus, drink, he confessed himself a radical revolutionist, but in the most peaceful and loyal sense. He did not object so much to the national revenue derived from beer; he would not oppose even an increase of the malt-tax, if considered necessary, provided that the habitual licensing system were given up and the trade properly compensated and made free; but the murderous system of licensed houses, where poison was frequently swallowed with the sanction and for the profit of the State, should be entirely abolished.

Mr. Robert Rawlinson, C.B., said the picture Mr. Fuller had drawn was a very deplorable one. He remembered several periods of prosperity in the history of the country, and he was sorry to say that the greater the prosperity the greater the demoralisation. Whether Government could do anything in the way of providing greater facilities for working men's savings he was not prepared to say, but as to collecting an income-tax through an employer, that he considered to be an impossibility.

Mr. J. E. Boys urged that working men's clubs should be kept entirely as clubs or places for the purpose of refreshment and amusement, and

their libraries should have as much light literature as possible. Something should also be done towards providing amusement for the working women, for whom little or nothing had been done. Such a work was an admirable one for a number of ladies to engage in.

After some remarks from Sir W. Stirling in support of innocent recreation for the people,

The Rev. R. H. Lundie observed that one of the difficulties mentioned in Mr. Fuller's paper had been to a great extent met in Liverpool by the establishment of cocoa-rooms for the working classes, no fewer than fourteen of these rooms having been opened within the last twelve months.

EXHIBITION OF SANITARY AND DOMESTIC APPLIANCES, LIVERPOOL.

DURING the past week large numbers of people have visited the exhibition in the Drill-hall, St. Anne-street, which was opened on Wednesday in last week, in connexion with the Social Science Congress, and on Saturday evening the place was so crowded that locomotion from stand to stand was a matter of no little difficulty. The size of the building was far from sufficient for the number and varied character of the exhibits, and it is much to be regretted that the endeavour to obtain Victoria Hall, which was specially erected for the religious services of Messrs. Moody & Sankey, proved ineffectual, as that commodious building would not only have proved to be most admirably adapted for the purpose, so far as accommodation was concerned, but it would also have been much more central for visitors and a greater advantage to the exhibitors. As it is, many of the exhibits could not be properly inspected on account of being too much crowded, and several exhibitors were obliged to keep back many articles for want of room on their stalls to show them. Mr. R. T. Chaplin, of London, had the management of the exhibition; but it was mainly due, as before, to the exertions of Mr. James Robinson. The ceremony of opening the exhibition took place at eleven o'clock, and was very simple.

Mr. Godwin, being called to the chair, said the exhibition was not exactly a portion of the Social Science Association's programme, but it was an offshoot, and he was sure that all who had attended previous exhibitions strongly desired that it should be made part of the actual business of the Association. Whatever might be said of wild theories mooted elsewhere, at that exhibition they had only hard facts to deal with, which could be well examined and at once disposed of. After stating that the number of exhibitors was upwards of 100, he proceeded to mention some of the most important sanitary appliances to be found in the exhibition. Mr. Hogg's models for ventilation well deserved examination. Mr. Cole's apparatus for lowering and raising windows would be found very useful where the sashes were heavy or difficult of access. Messrs. John Powell & Co. had sent some capital samples of building materials and painted tiling; and Messrs. Doulton a charming collection of the artistic ware they were producing. William Green's Climax Coal Saver had obtained approval from a public committee. Mr. Henry Scott's plans for the ventilation of ships appeared to be excellent; but the application of his system to the ventilation of sewers seemed not to be without objections. Messrs. Leoni & Co. showed that cooking could be done by gas with even a saving of money. Mr. Goodall's exhibit of concrete flooring, and Mr. Northcroft's Fire-resisting Compound Arched Floors and Roofs, were described and commented on. Alluding to the importance of having dry houses, he referred to the exhibits of the Silicate Paint Company, Seel-street, Liverpool, and said when they recollected the enormous amount of injury that lead-paint did every year, and the number of persons who were damaged most seriously by it, and the difficulty of keeping damp out of houses, and when they found that this company claimed to meet these two points, their preparations were of importance. Another useful appliance was Harrison & Wood's domestic flushing plug, which was a very small article, but from which, if largely used throughout Liverpool, considerable advantage would result. The Ladies' Sanitary Association had a stall, and their work ought to come under the notice of the ladies of Liverpool. They were quietly doing a good deal of work, and might do more if they were aided by committees established in such large towns as Liverpool and Manchester. After mentioning other of the inven-

tions exhibited, he concluded by impressing the importance of giving increased attention to sanitary matters generally. Thousands of people had died in Liverpool simply because of the want of good sanitary arrangements. Liverpool possessed able sanitary officers and many good arrangements, still people died to an alarming extent who ought to live, and would live, under better sanitary arrangements.

Dr. Yeats next spoke, and said, the object which the committee had in view had been to make the exhibition as representative as possible of each class, and as far as could be to show to what point England had arrived in affording to every one, rich and poor, the best means of meeting his domestic and his social requirements.

Mr. Baldwin Latham said he had attended the whole of the exhibitions which had been held in connexion with the Social Science Congress, and he could bear testimony to the good from a sanitary point of view which such exhibitions had had upon those who had frequented them. New appliances of a sanitary character had often been brought out at exhibitions of this kind, to which the public needed to have their attention drawn, in order that they might be adopted for the benefit of the public health. The present exhibition formed no exception to the rule, for there were in it numerous appliances of immense importance in a sanitary point of view. After dwelling at some length, and very usefully, upon the importance of having pure air and pure water, he remarked that it could not be said with regard to Liverpool that its water-supply was of the most desirable quality when they took into consideration the fact that a large percentage of the supply was procured from wells sunk in the red sandstone, and that the sewers which carried away faecal matter were hewn out of the solid rock, and constructed with the addition of an arch only. He hoped those who visited the exhibition would pay particular attention to all the appliances, because in each one of them they would find something worthy of note, and perhaps something which might be of importance to their own health and that of their families.

The exhibition was then declared open, and the chairman said he had only to commend it to the special attention of the inhabitants of Liverpool, and to express an earnest hope that it would be productive of good.

THE LIVERPOOL ART CLUB.

SOCIAL Science, which, in different parts of England, for the last twenty years, has culled flowers of many and divers species,—otherwise destined perhaps to blush unseen,—has just brought into unusual notice the existence of a society of gentlemen whose artistic doings, from what we have read and experienced, must be added to the catalogue of those good deeds which may yet brighten the naughty aspect of a materialistic world. The objects of this club are to found and perpetuate in Liverpool one general centre of communication and reunion, whither local art-collectors and art-lovers may be attracted under one common hospitable roof; while they, moreover, may in like manner be brought into closer and more direct connexion, not only with local, but also with metropolitan artists. This club also aids in the promotion of loan collections and in the delivery of lectures upon art. The Liverpool Art-Club, in its first by-law, describes itself as formed for the purpose of bringing together those interested in artistic subjects, and the furtherance of anything that may promote the interests or diffuse a knowledge of art; and we learn that an attempt is even now being made to found a similar club in another large city in the north.

The presence in Liverpool of a few Royal Academicians, with a sprinkling of other Londoners of artistic and antiquarian tastes or notoriety, has afforded the Art-Club another occasion for exercising its hospitality to strangers; and, last Saturday evening, it proved, in the most practical manner, that not the meanest of the qualities developed at a Social Science Congress is the science of sociality. The dinner, which was a complete success, was held at the Club-house in the room at present devoted to a loan exhibition of illuminated manuscripts. Covers were laid for seventy-nine, of whom thirty were guests; and among the latter, besides the Mayor, were the Marquis of Huntly, Sir Robert Collier, and four presidents of sections. Of these last, one, Mr. Herschell, Q.C., M.P., had de-

nounced, in his opening address, Coroners' Courts, and the uncodified state of English law; and another, Mr. Poynter, R.A., had, on that same morning, inveighed against an age of iron and engineers in general, and the landing-stages and bridges of Liverpool in particular. It was, therefore, with no small amusement that hosts and guests heard, in the course of the evening, the good-humoured rap on the knuckles received by both these gentlemen from the wit of one practised debater, and an awfully practical question put by another speaker. Mr. Herschell was pointedly told by Sir Robert Collier that "by no laws which you can enact, by no institutions which you can make, can you turn the savage into a civilised being. You require," added Sir Robert, "civilisation before good laws or good institutions are possible;" and the result of a wicked whisper induced Mr. Gaskell, the president, to say that he had taken the liberty to ask Mr. Poynter in what way horrible-looking works of utility could be made consistent with artistic rules; to which the Royal Academician had replied that it was scarcely his province to do more than point out the excessive ugliness of these things, and that it was for the engineers to devise some means by which utility and beauty would be combined. Nor did the Marquis of Huntly, who unintentionally delivered a little stab at the pugnacious character of art criticism, fail to raise a laugh by a story well told. He, it appears, is a *bric-à-brac* hunter; and once, killing time at a town in Northamptonshire, he found himself in the shop of "a silversmith with three balls over the door." Having asked the price of everything in the shop-window, and finding nothing of interest, he inquired if there were any great collectors in the town. The silversmith's wife said there was Mr. Sadler. "Pray," continued the Marquis, "what does Mr. Sadler collect?" "Oh!" replied the woman, "poor-rates, sir!"

Mr. Philip Rathbone, to whose earnestness the addition of an art-section to this year's Congress is due, spoke like a man of the world, as well as an art-lover. Referring to the repeated slur cast upon Social Science Congresses by the press, he said, very happily, that if such congresses did not advance science very much, they spread science; and concluded, with a touch of amiable satire, in describing Sir Robert Collier as "one who had shown that the love of art could flourish more strongly among politicians than among any other class of amateurs, except perhaps medical men." Nor did he fail to strike home with a hard hit—even in spite of the presence of the mayor—regarding the baneful influence upon the art of the country and the taste of the people exercised by some of our national and municipal institutions.

But the best speech of the evening was that delivered by Mr. Leighton, R.A., and we cannot but think that the evident facility with which he expresses himself,—with equal force and refinement,—will contribute, when the time comes, to lead to his elevation to a post which many of the public, and some of his colleagues, consider him destined to fill. Mr. Leighton's words (forming only a portion of his speech), if we remember rightly, were almost as follows:—"There can be no doubt that a place of meeting, where men, smitten with that absorbing thing—a love for art—may come together and discuss, in a friendly manner, their favourite topic, compare their treasured possessions, increase their knowledge, exchange their ideas, and by contact of intelligence perhaps evolve some new spark of thought—such an institution cannot fail to be useful as well as delightful, anywhere and everywhere. At the same time, I venture to think that the uses of an art-club are more especially obvious in great towns such as Liverpool and Manchester, which are huge centres of manufacturing and commercial activity, remote from the metropolis, where the current of daily life sets itself strongly and effectually in a direction entirely opposed and inimical to art. Although Englishmen have shown in political life that they cannot bear centralisation, in their artistic aims we see a different spectacle. We see heaped up, in profuse abundance, treasures of art in the metropolis; and, with the exception of the university towns of Oxford and Cambridge, and the capital towns of Edinburgh and Dublin, we see an almost entire baldness with regard to these things all over the country. How great is this contrast! See what immense resources are open to the lover of art in London. In the British Museum alone the student sees before him an art-epitome in all its lovely forms, which the world cannot rival. The precious spoils of the

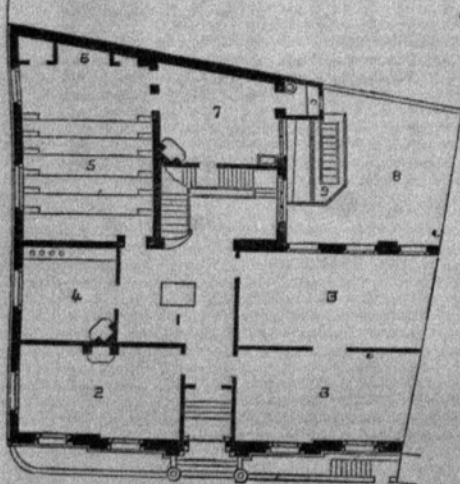
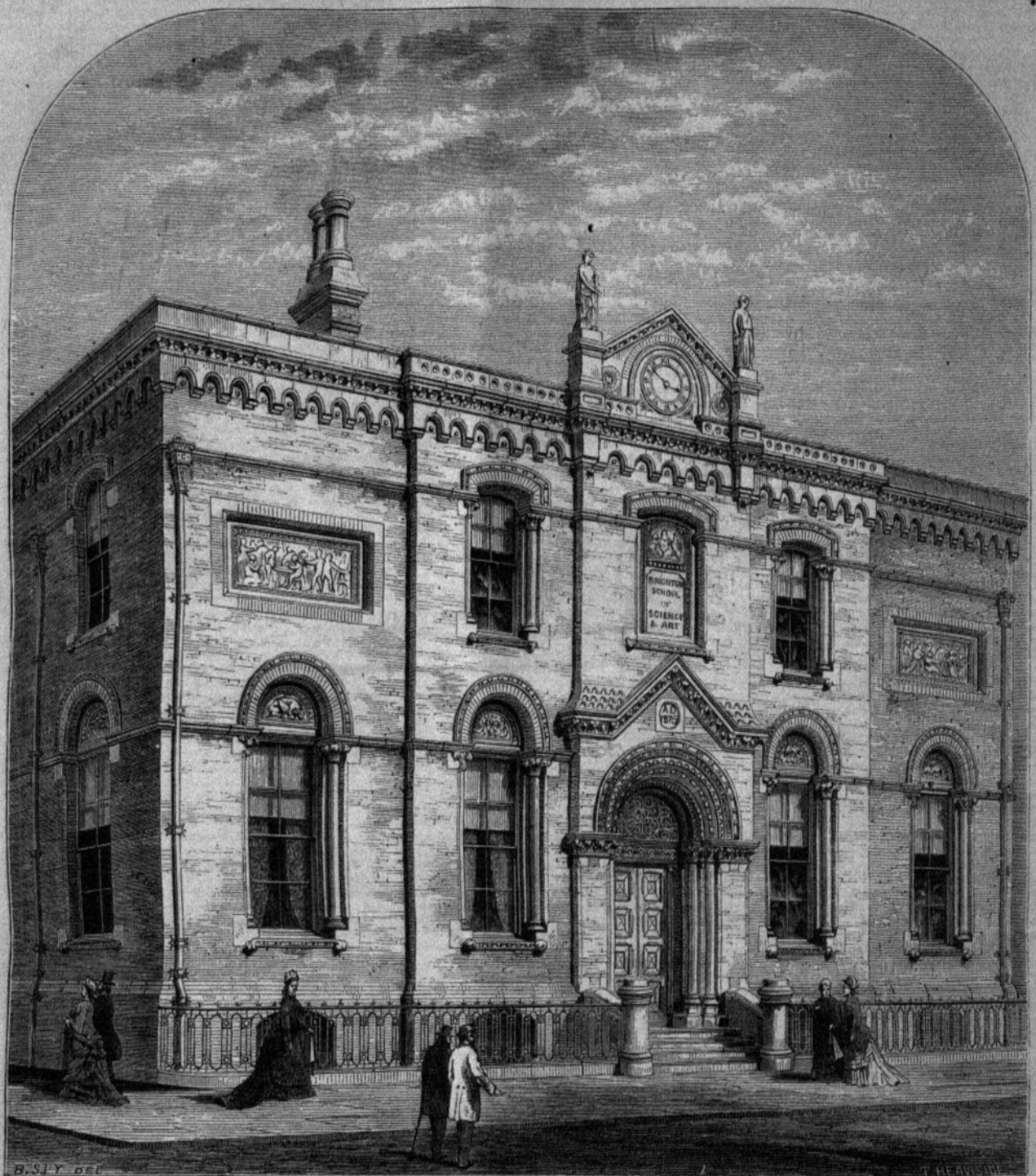
Parthenon, the light and pomp of scientific life in the great Periclean age, are arrayed before his eyes in the Panathenaic frieze; and, there, in the serene presence of gods and heroes, he may almost for a moment forget the din and squalor all around him. In the National Gallery we can follow the growth and development of the art of painting from its birth, in the city of Florence, to its culmination in Rome and Venice, and its later triumphs—its Indian summer—in Holland, Spain, and Flanders. . . . On the other hand, when we turn, say to Liverpool, we find these resources, not wholly wanting, but, at the same time, in an embryonic condition. A great deal, however, has already been done . . . but a great deal remains to be done, in order to propagate the knowledge of art, to raise its tone, and to spread its refining influences among the great commercial populations." Here it is that the uses of such a club as that at Liverpool come into view; and we agree with Mr. Leighton that the worthy and noble objects which the Art-Club proposes to itself, beyond mere social and convivial enjoyment, will spread a beneficial and lasting influence upon the community at large in the wealthy and yet pauper-ridden town of Liverpool.

BRIGHTON SCHOOL OF ART AND SCIENCE.

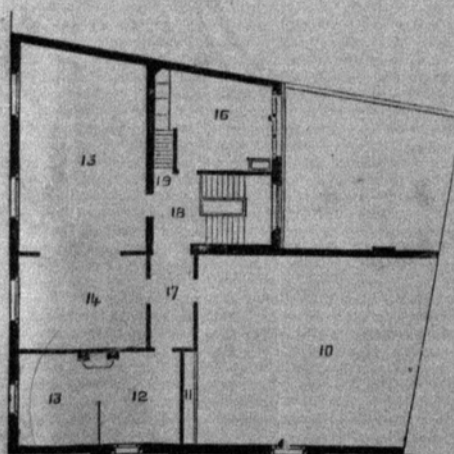
ON a convenient site in the Grand Parade, at the foot of Carlton-hill, a school of art and science is being erected for Brighton. We give a view of the façade and plans of the principal stories of the building. The first stone was laid by Sir Henry Cole in June last. Of the designs sent in—the competition was an open one—that of Mr. J. G. Gibbins, of Brighton, was selected by the committee. Before being finally passed, however, the plans and elevations were carefully gone through by the committee and Mr. Fisher, and they were subsequently submitted to the Science and Art Department, South Kensington, for approval. The building in style will be a modern adaptation of the Romanesque, and it will cover an area of 68 ft. by 71 ft. 6 in. The façade will be handsome with stone-work and figures in terra-cotta, suggestive of the character of the institution. On each side of the main entrance on the Grand Parade will be columns of red polished granite, while the window columns will be of red Mansfield stone, and the jambs of yellow Malm brick. The front wall of each wing will have a sculptured medallion, with emblematical figures let into it, and in the centre of the façade will be a clock with a statuette on either side. The cornices, balustrading, and coping, will be of Bath stone. The accommodation for the art classes will consist of an elementary-room, 38 ft. by 32 ft. 6 in., lighted from the top, accommodating a class of about eighty students; painting and antique rooms, together about 50 ft. by 22 ft., lighted from the north; a modelling-room, library, master's room, &c. For Science there will be two large class-rooms, professor's room, and chemical laboratory; and, for both, a lecture-room, occasional class-rooms, secretary's office, cloak-rooms and lavatories, and residence for attendant.

Mr. G. R. Lockyer, of King-street, North-street, Brighton, is the builder; and the immediate superintendent of the operations is Mr. Parker Anson, his manager.

Interesting Discovery in Rome.—An interesting discovery has just been made at Rome, in the Church of St. Peter ad Vincula. Workmen have been engaged for some time in the construction of a "confession," near the high altar. In the course of the excavations, in a line between the altar and the apse, they came upon a marble sarcophagus more than two metres in length. On the sides are sculptured five groups in the style, apparently, of the fourth or fifth century. The first represents the Redeemer raising Lazarus, with the sister of the latter on her knees at the tomb; the second, the multiplication of the loaves and fishes; the third, Jesus and the Samaritan woman at the well; the fourth, our Lord foretelling to Peter his triple denial; and the fifth, Christ giving the keys to Peter. The interior is divided into seven compartments, and this circumstance has given rise to the belief that the sarcophagus found contains the bodies of the seven Maccabees, which, according to Church history and tradition, rest in this church, built by Eudoxia.



GROUND PLAN



FIRST FLOOR PLAN

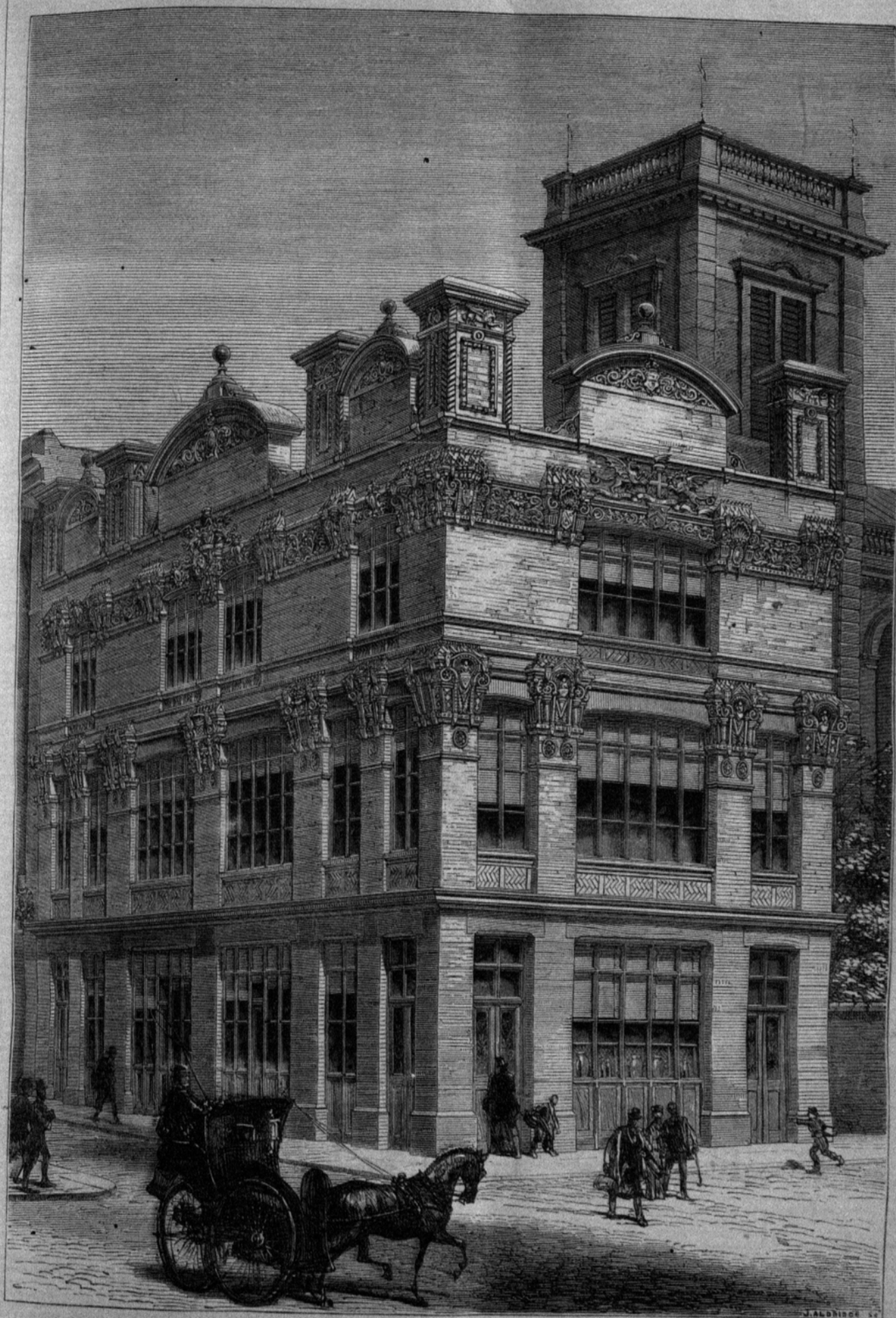
1. Entrance-hall.
2. Secretary's and Board room, 28 ft. by 16 ft.
3. Science class-rooms, 33 ft. by 16 ft. each.
4. Men's lavatory and paste-room.
5. Lecture-room, 31 ft. by 22 ft.
6. Black board.
7. Professor's room, 20 ft. by 16 ft.
8. Yard.
9. Roof of men's offices.
10. Elementary art room, 35 ft. by 32 ft. 6 in.
11. Closet.
12. Library, 16 ft. by 14 ft.
13. Master's room, 16 ft. by 14 ft.
14. Painting-room, 22 ft. by 16 ft.
15. Antique-room, 33 ft. by 23 ft.
16. Modelling-room, 20 ft. by 16 ft.
17. Lobby.
18. Landing.
19. Stairs to laboratory.

The ladies' room forms a mezzanine room above professor's room.

The basement floor contains caretakers' rooms, occasional class-rooms, stores, coals, &c.

The laboratory is over the modelling-room, and grand staircase.

BRIGHTON SCHOOL OF ART AND SCIENCE.—MR. J. G. GIBBINS, ARCHITECT.



"BAYNARD CASTLE," QUEEN VICTORIA STREET, LONDON.—DESIGNED BY MAJOR WIELAND.

"BAYNARD CASTLE," QUEEN VICTORIA STREET.

THIS building, of which we give an illustration in our present number, is composed mainly of red brick, the highly ornate decorations being moulded in red terra cotta. The premises, which are situate in Queen Victoria-street, at the corner of St. Andrew's-hill, have been designed and built by Major J. F. Wieland, who owns several other buildings in the same street, notably Albert-buildings, Imperial-buildings, Poultry-chambers, Bridge-chambers, and, lastly, the Oriental Restaurant over Blackfriars Station. In the present instance of the Baynard Castle, he has chosen a variety of the Tudor style of architecture, because the present building covers a portion of the site of the historic Baynard Castle, which was for some time the residence of King Richard III. while Duke of Gloucester, and afterwards while king. It was from his residence, Baynard Castle, that Richard Duke of Gloucester proceeded to Westminster to demand the throne of England, and thence also did he proceed on the following day to St. Paul's Cathedral, where he was received by the Archbishop and clergy as the King of England. Baynard Castle is rich in history, for it was here that Edward was named king, and where Richard usurped the title; where Henry VII. frequently resided, and on one occasion received and lodged his storm-tossed guest, Philip of Austria. In Baynard Castle, too, in still earlier times, lived Maud the Fair, who was killed with a poisoned egg because she refused the hand of King John. Nice times those!

In the excavations for the present building, traces were found, it is stated, of a secret passage, supposed to be that which ran from Baynard Castle to Henry II.'s Fair Rosamond bower on Paul's-hill Wharf. One of the latest historic facts connected with Baynard Castle is the occasion of Queen Elizabeth supping there with the Earl of Pembroke. In the days we speak of, the river washed the walls of the castle, but now the City Flour-mills stand some hundreds of feet in front of it into the bed of the Thames. We are glad, however, that the name of the old castle (which is also the name of the City ward in which it is situated) should be perpetuated, albeit that the name now only attaches to a tavern.

The terra-cotta decorations are chiefly heraldic, giving in their various details the arms of England, and the crests and supporters of various sovereigns who lived at Baynard Castle, together with the City arms and the arms of the ward. There is also a representation in terra cotta in bas-relief on the south front of the building of the original Baynard Castle, introduced since our engraving was completed.

The design has been carefully carried out by clever artists under the personal direction of Major Wieland.

AS TO THE INFLUENCE OF ACADEMIES UPON THE ART OF A NATION.

THIS question, discussed at the Liverpool Congress, is a very useful one. But, as it stands, it tacitly implies that academies, art-academies, as they are now constituted, were always a part of the art organisations of the world. This, however, was by no means the case. Academies of art are of comparatively recent origin. Whatever associations of artists may have existed in the two great art epochs, the Grecian and the Italian, the art of those epochs did not in the least degree owe its encouragement and progress to these guilds, but to much more potent influences outside and independent of them, viz., to the leading of the people, the culture of the people, and the will of the people.

The modern academy has risen upon the ruins of ancient art developments, more immediately upon that which was fostered by the Papal power. With the modern academy came in the institution of national galleries of pictures and museums of antiquities; in short, that complex system of institutions for art-teaching by which this present age vainly expects to place art on the same elevated pedestal as that of Greece and Italy; to effect, in fact, by an inverse process, by the force of example, what was patiently earned step by step through the centuries by hard thinking and patient labour. When the Church of Rome ceased to be the great patron of painters, and the walls of the churches, the palaces, and other public edifices were gradually closed against the genius of the painter, the time for picture exhibitions and academies came. The era of cabinet pictures set in.

The Academy of the Fine Arts was the product of these changed times. The world had commenced to educate itself and to think for itself. And whilst it was intent upon solving some very knotty questions, the feeling for art almost expired. Academies came to the rescue, and prevented its utter extinction.

It was under similar conditions to these,—in a country where the masses were uncultivated,—in a State where the taste of the people had no leading, in art, from the educated class, that the Royal Academy of London was founded, and faithfully it fed the lamp, and kept it burning till better times. For this devoted service we are deeply indebted to it. The Royal Academy deserves our gratitude. For had it not been for those associated English painters, sculptors, and architects, we should, in all probability, have had no art-sustaining power whatever,—no schools, no art-teaching through the greater part of a century. But the influence of such an institution upon the arts of a country, either for good or ill, is, under such adverse external conditions, too apt to be exaggerated. But now that there is somewhat more light diffused, on art matters, outside the Academy, the public is somewhat dazed by this access of effulgence, and has somehow or other got possessed with the notion that the Academy ought to be answerable for what it never can be answerable for, viz., the taste of the people. An academy in a free country, like all other institutions amongst a free people, will be what the people will to make it. The public in its intellectual progress has begun to rail at the Royal Academy without having itself as yet sufficiently advanced in its art-knowledge to understand that it is all the while railing at and condemning itself. For, in effect if not in words, it reproaches the Academy for not being something very different to what it has itself made it. If the Royal Academy had been endowed by the State specially to paint grand historical works, we might then have consistently blamed it for departing from the strict terms of its charter. But how can the public, with the least show of justice, complain if the academicians do not, with one accord, pursue the highest aims in painting, when the public itself is all the while demanding of them a very different kind of art? You are the great purchasers, you the great picture-buying public by whom the artists thrive. Artists paint their pictures to your orders, to your tastes. It is really you, and not the Royal Academy, who exercise the greatest influence over the arts of the country. It is really you who determine, though you may perhaps not be aware of it, the path which the rising art-talent shall pursue, but who yet have the effrontery to turn upon and blame the Academy and the art-schools of the country for only too well complying with the strict letter of your demands. An academy would possess a superhuman obstinacy if, in a country like this, it could for any length of time run counter to, and defy, public opinion and taste. When there happens to be anything wrong about a house, it is no uncommon thing for the master to turn upon and blame his servants. He seldom entertains the suspicion that he himself may be to blame. Can that public which has modified the several estates of the realm of this great country seriously turn upon a special institution like the Royal Academy, and accuse it of being the cause of all the national art short-comings, and of defying its sovereign will and pleasure? To me, the proceeding appears to be utterly childish, and unworthy of a great people.

And what did the nation do when the cry was first raised against that institution,—against that institution but for which we should have had no art at all? Why, instead of rewarding it for its devotion, and increasing its powers, you established a new art-department to take the art-teaching of the country out of its hands.

How was it, I would inquire, that the nation was able to effect the great political reforms of the last half-century? Was it not by that educational progression which gave the people a clearer perception of their rights, and which enabled them to discern where error and corruption lurked, and to ask distinctly for the necessary reforms? A similar movement, arising from a similar cause, if I rightly interpret the addition of the art-section to the present Congress, is beginning to stir the country with respect to its art policy, and I feel convinced that it will be followed by equally important and beneficial reforms in regard to art as that which preceded it was in favour of better representation and good government.

Let us turn for a moment to survey the conditions on which a grand national art development depends. 1. It depends upon the leading of the people. 2. It depends upon the education, the culture of the people. 3. It depends upon the unity of thought and purpose of a people. 4. It depends upon the stability of a State.

1. Art depends upon the leading of a people, because the time must be yet far distant when the great mass of the population of this kingdom can possibly attain to that highest culture which is reached by but few. Meanwhile, the leading of the masses in art, as in other matters, devolves upon that educated few. It is the leaders of the people who should direct the taste of the many, who should open up great opportunities for the exercise of artistic talent, and demonstrate to the people that art in its highest exercise becomes monumental, by embodying, in more or less durable materials, the thoughts and aspirations of a people,—who should convince the people that unless this monumental art be encouraged, we shall, as a nation, have no lasting record of our intellectual status.

2. Art depends upon the education of a people, because it is the more finely organised sensibility which is developed by culture which makes men susceptible to the refinements of art. Without this educational preparation it will be in vain to expect any improvement in taste.

3. Art depends upon the unity of thought and purpose of a nation, because this alone leads to unity of style in architecture, painting, and sculpture, and impresses the arts of a country with a distinctive character.

4. And art depends upon the stability of a State, because political and social stability enables the fine arts to be persistent in their labours, and thus to perfect both their theoretical and practical knowledge.

But what would be the condition of the artist, and of art, in a State wherein all these necessary conditions for the successful prosecution of artistic studies were wanting, as they were in England, if we except that of national stability, till very recent times? For what leading had the people in art, half a century since, from the educated class? What field has the artist had in this country for the exercise of his talents on a "grand scale," on monumental painting, compared with the painters of Greece and Italy? Where was the unity of thought and purpose which would have made our cities rise, not as they have done, a chaotic patchwork of styles, but bearing upon them a common impress, exhibiting an architectural and national magnificence? Yet this, I say, was the very confusion of things which existed in England at the time the Royal Academy was founded. The Academy was quite powerless to change these conditions, but the walls of the Academy nevertheless served as a fortress in which the few English artists fought bravely through the adverse time, and the Royal Academy will, I will venture to say, send you recruits when you have found new fields for artistic conquest, and wider campaigning ground than that of the walls of the Academy itself.

I myself very much doubt whether an Academy of Fine Arts, constituted as modern academies are, could at any time show the slightest signs of vitality without being in some degree representative institutions. They may wear the appearance of being exclusive and absolute, when the art darkness of a people is profound, and they represent the taste but of a small class. The Royal Academy is now the representative of a much wider constituency than of old time, and none, I feel persuaded, know better than the Academicians themselves that the Academy's occupation would be gone if it ceased, as a body, to modify its views, and to respond to the taste of the people. I have myself noticed how faithfully the walls of the Academy have reflected any popular bias to this or that temporary art fashion.

I have, therefore, come to the conclusion that an academy is principally useful as serving as a stronghold in adverse art times, but that it has little or no power to mould the taste of a people,—it is itself influenced and moulded by public opinion, public taste.

Academies, as I have already stated, are modern institutions. In the two great art epochs, in those two epochs which produced the finest examples of art, academies, under the form in which we now know them, had no existence. Our modern art policy is altogether different from that which was so pre-eminently successful. There was no necessity for Academy

exhibitions when the walls of every important building were in themselves a grand exhibition. There was less need for the painting of cabinet pictures when the public took a lively interest in the grand themes of religion and history. There was very little occasion for schools of art when the system of scholarship prevailed, and every newly-erected edifice was a school of the very best kind,—a school in which the student was not left at the very threshold of art to shift for himself, but which conducted him far beyond, and furnished him with that experience which made him either a painter, a sculptor, or an ornamentist.

Depend upon it, if this country is to make a great mark in the fine arts, we must change our art policy. If we do that in the direction in which Greece and Italy point, and keep our minds steadily fixed on the great ends to be achieved, we may save the breath of clamour against academies, against any established art institution whatever. Liverpool has the inauguration of this new art-policy in her own hands, and to her fostering care I commend it.

But whatever changes may take place in the art-policy of this country, there is one function which an Academy of the Fine Arts, like that of the Royal Academy of London, ought to be the best able to perform. I mean that of dispensing honours, and of honours I trust it will remain the fountain-head as long as artists retain the amiable weakness of desiring them for their good work.

W. CAVE THOMAS.

THE INTERIOR OF CHESTER CATHEDRAL.

SIR,—Having, since writing my former remarks thereon, had the pleasure of seeing the above-named place, I am impressed by one or two features in its treatment which, I think, in the interest of church arrangement and decoration generally, might be profitably brought under the notice of the profession.

The opening of the south transept into the church, and the clearing of the central space, from which all the vistas radiate, is a great improvement, and fully discloses the beauty and interest of a very impressive interior, and increases or restores the unity of the cathedral,—a quality very desirable in all such structures, and one in which our cathedrals are somewhat inferior to the French, which generally exhibit one vast apartment that strikes with an effect of noble simplicity and majesty, though ours have the greatest apparent length in proportion to their actual dimensions. One vista, I would just remark, the one upwards, has not been improved by the great chandelier hung up in the tower.

On the north side of this central space, two couples of polished Classic marble shafts, brought, I was told, from Corinth, which enter into the composition of the unique organ-screen, make a pleasing variation; and would have been still more pleasing and harmonious had their capitals, and the superincumbent features in the screen, been of the same precious material.

On entering the choir, though fully conscious of a due solemnity arising from grandeur and purity of form, which must owe much to the removal of whitewashes and excrescences, I could not help feeling a want of keeping between the bare sandstone of the piers and arches, and the richness everywhere else displayed,—in floor, storied pulpit, carved throne and stalls, and above all in the altar and reredos, in the construction of which has been wisely acknowledged, by the use of inlayings to which sacred associations attach, a principle which is violated in restorations generally. Nothing can be finer in form than those piers and arches, and the Early English triforium above them. But equally apparent with their beauty of form is their need of colour.

The newly-scraped stonework has, I am well aware, been left in this state in conformity with the general usage. But I am quite sure it is a violation of true principle and a grievous mistake so to leave it; and I should say the same were I assured it was the invariable practice of the Mediaeval artists to do so. Without painting and embellishment, such an interior cannot have half the effect it is capable of, or look truly finished.

The only worthy interior finish, I conceive, of a great monumental structure, is the polished surface of a marble lining, which being once applied, finishes it for ever. As this is inappli-

cable here, painting and gilding, which could not be more worthily employed, should be brought to the rescue, and save the house of God, at least the most sacred division of it—the choir and its aisles,—from presenting a meanness of surface which we could not tolerate in our sitting-rooms, and which prompts the feeling expressed by David when he said, "Lo, I dwell in a house of cedar, but the ark of the covenant of the Lord remaineth under curtains." Fancy the improvement that would be produced in the place if piers, arches, walls, and triforium arcade were suddenly changed by waud of magician from dark-red coarse-grained sandstone, to dark-red polished granite. How greatly more palatial and monumental would be its air and character! But some three or four coats of oil-paint, highly varnished, would, without imitating any superior material, realise an almost equal effect, and, at the same time, be preservative of the stone from injury by damp. Gilding might be added so as to emphasise the forms if needful, while horizontal gilded and decorated bands might be so disposed as to increase the apparent height of the piers, and of the interior.

The noble and meritorious composition of St. Paul's Cathedral has inspired the universal wish to supply the great desideratum therein of good detail and decoration, and render its finish worthy of the general design. But the buildings in question are quite as worthy of receiving all possible internal adornment as the great work of Wren. In them the highest efforts of art-skill have been successfully put forth to produce excellence,—excellence which, whenever duly appreciated, must inspire the wish to carry out the general design to its utmost limits in regard to detail. Nothing, we may be assured, judiciously applied in the way of embellishment can be lost in those interiors. The distribution of light in them, more particularly by the great east and west windows, is so admirably adapted to enhance the result of majestic proportions by broad and powerful effects of *chiaroscuro*, such as delight us in pictures, and give the utmost beauty to any detail, moulding, or element of decoration, that it seems high treason against the republic of art not to give them the highest finish of which they are susceptible.

Some of the loftiest elements of adornment employed at St. Peter's Church at Rome, and the most sumptuous churches, Classic or Gothic, of the South of Europe, are equally applicable to these,—the finest and most venerable monuments we possess; and are, indeed, necessary to render them worthy of their exteriors, on which, in almost every instance, the beautifying finger of nature has been busy, till every stone has become literally a picture, and the whole glows with the interest and beauty of a landscape painting. But I return to the particular example under consideration, the omission of painting in which, I humbly think, a mistake. I should not here point it out, were it not one which could still be corrected.

Colour and decoration on the arcades would render the extremely minute and rich mosaic floor more in keeping with its surroundings. For elaborate floors, for which there seems a passion among us, at present, we have no high precedent, or authority in reason. The tessellated, or rich mosaic pavements of the Classic ancients, we may be well assured, were never used but in connexion with walls and ceilings decorated in the highest style of art; or in accordance with the principle that, of the planes which bound an apartment, the plane of the floor, which is to be trampled on, is the most inferior in its claims to ornamentation. There are some inlaid figures in this floor, which I need scarcely say, are too sacred to be walked upon, even were the Oriental custom in vogue of taking off the shoes on entering our holy places.

The old carvings of the stalls have, very properly, been thoroughly cleaned. But in the operation of cleaning, which was by boiling, they have lost something of their look of age, which had been better retained, the more so as all looks new elsewhere. A general look of newness in the interior was of course inevitable. But, in so old an edifice, the eye instinctively looks for some sign of age; and these old carvings would have satisfied it.

SAMUEL HUGGINS.

Trade Marks.—Negotiations are in progress between the Governments of Germany and Brazil for the conclusion of a convention for the mutual protection of trade marks.

A WORD FOR THE BUILDERS' BENEVOLENT INSTITUTION.

THE annual dinner in aid of the funds of this Institution will be held on the 2nd of November, Mr. Charles B. Waller in the chair. The invested property now amounts to something over 19,000*l.*, and the committee hope, with the assistance and through the liberality of the builders of the metropolis and their friends, to raise this fund to 20,000*l.* before the close of the year. When this end is attained, as surely it may easily be, they will feel themselves justified in distributing the whole of the annual income in pensions, without further adding to the invested property. We trust some of our readers will join in the present effort to increase the sphere of usefulness of the association.

From want of funds many deserving cases cannot be entertained. There are always more candidates than there are pensions available, and it frequently occurs that individuals have to stand five or six elections before they are successful, which, to persons of the usually advanced age of the applicants, often means total failure. The annual subscriptions are far below what might be expected of such a great industry as the building trade of this great city, and the committee are begging those who are not subscribers to become so, and those who already subscribe and can afford to enlarge their subscriptions to do so.

The pensions, viz., 24*l.* for men and 20*l.* for women, were fixed when the necessities of life were far less costly than they now are: consequently the allowances no longer represent the same relief that they did formerly, and the committee are therefore very desirous to increase the amounts to such an extent as will give to their unfortunate brethren a somewhat larger share of the comforts so essential to declining years. This they cannot possibly do until they have a larger annual income at their disposal, and for this we now join them in asking.

THE EDUCATION OF ENGINEERS.

SUGGESTED DIPLOMA.

At the first ordinary meeting of the winter session of the Manchester Scientific and Mechanical Society, held on the 13th inst.,

The President (Professor O. Reynolds), in his inaugural address on "Engineers as a Profession," referred at length to the paucity, which he said had existed in the means of education for engineers; and alluding to the cause of preliminary technical education having been held of such little account, said the classical education of our public schools, or the mathematical education given at Cambridge, however much it might develop the power of mind of its possessor, were hardly the one more than the other calculated to forward the study which was his immediate object. By the establishment of special schools, and the extension of those existing, all the more useful branches of science were now, however, within the reach of the student of engineering, and in the form most suitable for him, so that as a step towards understanding the theory of machines, it was not now necessary for him to begin with the theory of astronomy or the doctrine of chances. There were now some fifteen colleges and universities in the country, where not only could a knowledge of all the useful sciences be obtained, but where the application of science and mathematics to the work of the engineer was made a special branch of study; and such was the hold which the study of natural science had taken in all classes, and such were the facilities for those in the lower ranks to rise, that it seemed quite certain that if those who had the best opportunity of qualifying themselves as engineers neglected to do so in the highest manner they would find their places filled by those who, while rising from below, had made better use of their opportunities. To the body of engineers as a whole belonged the duty of prescribing the course of study which should entitle any one to rank as one of them. It was not, however, too much to say that at present nothing of the kind was attempted in England, and although various ways in which it might be done, had been under discussion, apparently no conclusions had yet been arrived at. It was done in other countries, and the fact that it was done by other professions was a sufficient proof that it might be done by engineers. Why could not the representative bodies of engineers constitute themselves into examining bodies like the College of Surgeons

or the College of Physicians, and only admit such members to the various grades within their ranks as should satisfy them as to the sufficiency of their education? Such a plan, if effectually carried out, would be a great advantage both to the outside public and to engineers themselves. It might be said that there were already institutions which required some qualification for membership, but the test for mechanical and civil engineers was entirely one of position, instead of one of capacity. The only approach to a real examination test was that for the degrees and certificates in engineering science conferred by the various colleges and universities, but these, however much they might be sought for the intrinsic value of the education they implied, were not as yet generally recognised by engineers. That they soon would be, seemed, however, probable, for one important step towards this had just been commenced by some of the engineers round Manchester, who had agreed to recognise the value of the complete certificates of Owens' College, by taking the holders of them into their work. In conclusion, the president said he hoped the time was not far off when the engineering profession would be able to hold its own, not only in the importance of its work and the capacity of its individual members, but as a corporate body, discharging all functions necessary for handing down its importance to posterity.

"GREAT EASTERN-STREET."

SUCH is to be the name of the new street from Shoreditch High-street to Old-street, which was formally opened on the 12th inst. by Mr. C. M. Roche, acting for the chairman of the Metropolitan Board of Works (who was absent through the death of a relative). The street forms a portion of the comprehensive scheme of street improvements initiated by the Board in the session of 1872, and confirmed by an Act passed in that year, the particular improvements of which this is part extending from Wapping High-street to New Oxford-street. The expenses incurred or to be incurred under the Act will probably amount in the whole to 2,500,000*l.*, of which sum the portion from Shoreditch to Old-street will have cost about 435,000*l.* Of these sums a large portion will be recouped by the letting and sale of building plots. The length of street from Old-street to Shoreditch is 2,000 ft., and the width is 60 ft., of which 36 ft. are devoted to carriage-ways and 12 ft. to each footway. The roadway is of granite, and the footways of York paving, and the cost of forming the road and of works in connexion will probably amount to something over 34,000*l.* The contractors were Messrs. Nowell & Robson. As 1,600 ft. of the road were opened for traffic some few weeks ago, 400 ft. only remained to be formally opened. The total length of new thoroughfare between Vernon-place, Bloomsbury-square, and Bethnal-green will be, when the improvements are completed, about two miles and a half, forming an uninterrupted communication between the eastern portion of the metropolis and New Oxford-street.

The members of the Metropolitan Board were afterwards entertained at luncheon by the vestry of St. Leonard's, Shoreditch.

NEW ENDOWED SCHOOL BUILDINGS IN CAMBERWELL.

THE accumulated proceeds of a legacy left in trust, many years ago, by Mary Datchelor, for repairing her vault and monument in the church of St. Andrew Undershaft, educating children within the parish of St. Andrew, and apprenticing boys to trade, are about to be laid out in the erection and maintenance of spacious new school buildings in Camberwell for the education of girls. The new establishment is to be a middle-class school, capable of accommodating 400 girls. It appears that, in consequence of the continued removal of residents from the City, there have, for some time past, been very few children to educate within the parish of St. Andrew, and the funds of the charity in this respect have been practically useless. This has led to the trustees of the charity inducing the Charity Commissioners to draw up a new scheme for the administration of the funds under the legacy, which now amount to about 30,000*l.*, and which are invested in 3*l.* per cent. Annuities. In the first instance the Charity Commissioners drew up a scheme under which the trustees were empowered to purchase a site, near and con-

venient to the parish of St. Andrew Undershaft, upon which to erect new school buildings for the education of girls of the middle class. Girls resident in, or connected with, the parish of St. Andrew Undershaft were to have priority of admission, and next to them other girls of the middle class not so connected. In accordance with this scheme, the trustees proposed to erect a school on a site at Hoxton; but the Charity Commissioners did not approve of the neighbourhood of Hoxton, and, after considerable delay, a second scheme has been issued by the Commissioners under which new school-buildings are to be erected in Camberwell, on a site which, it is stated, the trustees have secured in the neighbourhood of Camberwell-grove, near Church-street. The fees for each girl are to be 9*l.* a-year, and in connexion there are to be exhibition competitions. The scheme provides for the repairing of the founder's vault and monument in the church of St. Andrew Undershaft, and also for other payments stipulated in the bequest, including small annual sums to the rector, clerk, and sexton, and for the payment of pensions to aged decayed tradesmen and others, and their widows, connected with St. Andrew Undershaft.

THE FALCON LODGE OF FREEMASONS (THIRSK), AND ARCHEOLOGY.

ON the 7th October the members visited Leake, accompanied by the vicar, the Rev. A. T. Atwood, M.A., Rural Dean, and Messrs. Lewis & Brodriek, architects, of York and Ripon. Here many centuries ago stood a large village, which was probably destroyed under the successive attacks by the Danes, the Normans, and the Scots; its existence and extent being partially traceable in the ridges and buried foundations found in the neighbouring fields. Leake Hall, the only remaining house in the village, is an ancient building, containing many of the features of the manorial houses of the sixteenth century, a wide staircase of massive oak, and having its rooms wainscoted in panels.

The most important part of the church, in an antiquarian view, is the tower, which is of Anglo-Norman character, if not earlier. The belfry windows consist of two semicircular-headed lights, divided by a baluster shaft. The tower contains three bells, one of which is reported to have been brought from Rievaulx Abbey, and is inscribed, "O pater Aelred Grendale Miseri Misera." It is supposed to have been the gift of Aelred, the third abbot of Rievaulx, who died 1166, and the form of the letters denotes a period subsequent to the Norman Conquest. The other bells have inscriptions with the date 1618.

There are two curious specimens of ancient carving in oak, bearing figures of nondescript animals, symbols with brief legends, and the date of the work 1519. When the church was restored, in 1854, these were removed from the south aisle, where it is supposed a chantry chapel formerly was, and have been converted into choir-stall ends, and placed in the present chancel.

The nave arcade is Norman, with caps and arches. There is a piscina remaining in the south aisle, and an ambrey in the north wall of the chancel. A brass plate on a large black stone in the nave, with old English capitals, is inscribed:—

"Of yor charitie p'p' for ye soules of John Watson su'tyme Auditor to ye Lord Seroepe of Upsall and Alice his wife and their child whose soules Jesu p'don."

The roof is of oak, and corbels remain in the walls, at the same level, showing that formerly it has been much higher, which can be accounted for by the recorded fact that in the incursions of the Danes, during the ninth and tenth centuries, almost all the monasteries and churches were set on fire and destroyed.

Withdrawal of Tender.—At a meeting of the Kensington Board of Guardians, on the 12th inst., a letter was read from Messrs. Browne & Robinson, whose tender for erecting a new board-room and strong-room for 1,253*l.* was accepted on the 28th ult., saying that, in consequence of an error in their estimate of 496*l.*, they must withdraw their tender. The chairman (the Rev. C. Darby Reade) said these contractors had done the same thing once before at another Board of which he was a member. After some conversation the next lowest tender was accepted,—that of Mr. Smale, for 1,533*l.*

A WILBERFORCE NEW CHURCH AT CAMBERWELL.

LAYING THE MEMORIAL STONE.

THE memorial stone of one of the five new churches intended to be erected in South London in memory of the late Dr. Wilberforce, Bishop of Winchester, has been laid this week by the Bishop of Guildford. The site of the new church, which is dedicated to St. Luke, is in Rosemary-road, Commercial-road, Camberwell, in the midst of a neighbourhood which has recently been laid out for building purposes, and on which upwards of 200 houses have already been erected, whilst building is going forward at a rapid rate, and what little more than a year or two ago was mainly a large market garden, will shortly be a thickly populated locality. The new church will have a capacity for seating about 1,000 persons. The style of architecture adopted is a mixed Gothic, the materials being moulded red bricks, and Bath stone dressings and windows. The aisles will have lean-to roofs, and the nave will have a lofty clearstory, with an open-timber ceiling. The lower portion of the interior walls, to the height of about 6 ft. from the floor-level, will be wainscoted and painted, whilst the main part will be faced with red brick, uniform with the external elevations of the edifice. The nave will be divided from the aisles by arcades, the arches of which spring from Bath stone columns. The interior dimensions will be upwards of 120 ft. in length, and about 60 ft. in width, including a spacious chancel, with clergy and choir vestries, and organ-chamber. At the west end there will be a tower and spire. Mr. E. K. Cutts is the architect, and the builders are Messrs. Colls & Sons, of Moorgate-street and Camberwell, whose contract is 7,932*l.*, but we understand that this does not include the whole of the interior fittings and intended decorations.

MEMORIALS OF THE LATE BISHOP WILBERFORCE.

AN episcopal throne, designed by Sir Gilbert Scott, has been erected in Christ Church Cathedral, Oxford, at a cost of 1,000*l.*, as a memorial to the late Bishop Wilberforce. The following figures are included in it:—On the top of the gables, front, our Saviour; east, the Virgin Mary; west, St. Frideswide; back, a finial; at the four corners, St. Matthew, St. Mark, St. Luke, and St. John. In the angles are the heads of the following bishops:—St. Birinus, St. Remigius, St. Hugh, and St. Grosstete. Dr. Wilberforce is represented in a medallion at the back. A new chapel, lecture-room, and other buildings have also been added to Cuddesdon College as memorials of the late bishop, who founded the institution. These latter have cost 6,250*l.* It was determined to erect these memorials at a public meeting held in the Sheldonian Theatre on the 3rd of October, 1873, and they are now just brought to a successful completion.

We have engraved a view of the bishop's throne at Oxford, and will take an early opportunity to publish it.

THE AGE OF ROCKS.

AT the first meeting of the session of the Liverpool Geological Society, on the 10th inst., the retiring president, Mr. T. Mellard Reade, C.E., delivered the annual address. The subject was an interesting one, being a calculation of the amount of solid matter removed annually from the surface of England and Wales in solution in rain or rather river water. The result of the calculations, which were of an elaborate nature, founded upon the analyses of water given by the Rivers Pollution Commission in their sixth report, and upon the rainfall chart prepared by Mr. Symons, showed that it would take 13,008 years to remove in this manner 1 ft. in depth of solid matter over the entire surface of England and Wales. This calculation was compared with others. As throwing light upon the age of sedimentary deposits, the calculations, taken together with the amount of matter annually brought down in river water in suspension in the form of mud, are extremely interesting, and Mr. Reade deduced from them that the minimum amount of time which must have elapsed since the first sedimentary rocks we know of were laid down, is in round numbers 500 millions of years, thus supporting the views of Lyell, Hutton, and other geologists as to the immense age of the world.

PUBLIC DRINKING-FOUNTAIN AND CLOCK-TURRET, KIDDERMINSTER.

A DRINKING-FOUNTAIN with clock-turret has been erected by Mr. John Brinton, J.P., of Moor Hall, Stourport, and will be presented by him to his native town—Kidderminster—on this Saturday, the 21st inst., when the ceremony of unveiling will be performed by Mrs. Philpott, the wife of the Bishop of Worcester, the structure being accepted by the Mayor of the borough and the Town Council on behalf of the burgesses. The building, which is in the Geometrical style, is octagonal on plan, measuring 12 ft. 6 in. across, and standing on a platform of York stone, 20 ft. across, the height to the vane being 32 ft. The three taps, placed over Sicilian marble basins are supplied with water from the town mains, and this flows from them to fill the York stone drinking-troughs for dogs.

The arcade surrounding the structure is composed of York stone arches, supported upon red Aberdeen granite shafts, with Cornish granite bases, the body of the structure being built of York stone and the spire erected in Bath stone with blue bands. At the rear is a space enclosed with a handsome iron railing, and planted with ornamental shrubs.

The turret has a clock with three illuminated dials, supplied by Messrs. Swindon & Sons, of Birmingham, also at Mr. Brinton's cost.

The fountain was erected from the design and under the superintendence of Mr. J. T. Meredith, architect, Kidderminster, and the works have been carried out by Mr. John Everal, of Malvern, the carving being executed by Mr. W. Forsyth, of Worcester.

MESSRS. DOULTON AND THEIR BRICKLAYERS.

THE following letter from the Secretary of the Operative Bricklayers' Society reached us immediately after the publication of our last number. It has since appeared in several newspapers, and Messrs. Doulton have contradicted it in parts; nevertheless, we now publish it, as it might otherwise be supposed we were unwilling to give both sides fair play. From the Artisans' Institute, Castle-street, where there is evidently a want of understanding amongst themselves, we print one more letter. For several other communications on both sides we have not room.

SIR,—As much misunderstanding exists in the public mind regarding this unfortunate dispute, I feel it my duty to explain the matter and to make such suggestions upon it as may be fair and just to employers and workmen.

It has been stated that we, the Bricklayers' Society, object to any workmen other than bricklayers fixing terra-cotta, which is not true, and is calculated to place us in a wrong light before the public. What we have hitherto contended for is the following:—Where the walls of a brick building are ornamented with terra-cotta, the bricklayer should have the fixing of the ornamental work, the same as they do in gauged arches, cornices, mullions, &c., which are composed of brick worked into various ornamental forms by the bricklayers, according to the specifications of the architect. We have also considered that where the walls of a building are composed of stone and the ornamentation is terra-cotta such work could be advantageously done by a mason. The same principle we have contended should apply to the plasterer; where the walls of buildings are to be cemented or stuccoed it would be quite consistent with his ordinary work that the plasterer should have the fixing of the terra-cotta. It has been asserted that the bricklayers know nothing of, and are incompetent to fix, terra-cotta; our answer to that is by giving the following places where terra-cotta has been set by bricklayers. The work must answer for itself. At 200 houses, villas, and mansions in Ferndale-road, Clapham, for Mr. Jennings, terra-cotta-maker and engineer; the Natural History Museum, South Kensington, where from thirty to forty bricklayers are now setting terra-cotta. Thomas Cook and W. Humphreys, both members of our Society, fixed all the terra-cotta in Mr. Doulton's house at Tooting-common. The case in dispute has arisen in consequence of the men on the works having taken the above view of the question. When the works commenced a number of bricklayers, consisting of Society and non-Society men, and as competent a lot of workmen as were to be found in London or elsewhere, went to work with the belief that they would have, as usual, the setting of the terra-cotta. When they had been working nearly two months, and had reached the second story of the buildings, they were surprised to find that two men, who had previously worked as plasterers, were brought on to the works and put to do the terra-cotta ornamentations. The men, believing that the usage of the trade was thus unfairly interfered with, had a consultation among themselves, and resolved on laying the case before our Council. After an investigation, the Council deemed it advisable to send one of their members, W. Ashdown, to the employer, with a view of effecting a satisfactory adjustment of the difficulty. The delegate proceeded at once to the works and saw the manager, Mr. Phillips, and upon the grounds above stated desired the removal of the two men. Mr. Phillips in a summary manner declined to entertain the question. This was reported to the Operative Bricklayers' Council, and the following resolution was the result:—"That in the event of the two plasterers not being removed from setting terra-cotta with the bricklayers the men be empowered to act in whatever way they may deem fit." The men continued working out the week, and on the following Monday they held a meeting, and decided upon consulting myself upon the whole

matter. They came to me and wished me to see Messrs. Doulton on the subject. To this proposition I at once assented. I went to the works and saw Mr. Doulton and Mr. Phillips, who received me most courteously. During the conversation, which lasted upwards of an hour, I made the following proposition:—"Would they agree for the bricklayers to fix the terra-cotta work on the two large buildings, and the plasterers to remain doing the terra-cotta work on the job in the High-street? This proposition which I thought was a fair compromise of the dispute, was refused by Mr. Doulton. I then proceeded to the public-house close by the works where the men were assembled, and reported the foregoing facts to them, when a resolution was immediately moved by the men, and unanimously carried, to the effect that the men would not return to work under existing circumstances; and a picket was appointed to inform bricklayers of the dispute and where they might obtain work. It will thus be seen that this dispute is one emanating from society and non-society men themselves, and not brought about by the action or wish of the Bricklayers' Society, and it is as much regretted by our Council as it ever could be by employers or any other portion of the community.

If the two plasterers had been on the work when it commenced I feel quite sure that no objection would have been taken to them by the men, but the fact of bringing them into the work after it had reached the second floor, and then for our men to be told they were not competent to do the work, was more than the self-respect of the bricklayers could bear. To prevent any further misunderstanding regarding the wishes or intentions of the Executive Council of the Operative Bricklayers' Society, I most respectfully make on behalf of the society the following proposition:—"That if the grounds, as above stated, upon which bricklayers, masons, and plasterers were interpreted by us to fix terra-cotta are not approved of, we are most willing to have the whole question submitted to a board of conciliation and arbitration, to be composed in the following or any other satisfactory manner:—That Messrs. Doulton & Co. elect three gentlemen in whom they have confidence, that the Masons' Society elect three, that the Plasterers elect three, and the Bricklayers' Society elect three, the whole of these to form a board and choose a chairman from outside the board whose known character and position in society should place him beyond suspicion as to prejudice or partiality. I earnestly hope that the proposition I have made will meet the cordial approval of Messrs. Doulton & Co.,

E. COULSON, General Secretary,
Operative Bricklayers' Society.

SIR,—By the publication of the following, you may be able to remove any misapprehension that may have arisen in the minds of your readers from the perusal of the letters that have appeared in the last two numbers of your journal.

In the first, your correspondent, Mr. Morris,—to whose letter, as a whole, I would fain make no remark, only that he advises Messrs. Doulton & Co., and any other employers requiring specially skilled bricklayers to apply to the Bricklayers' Technical Class, and they would get what they want. To this I, as one of the two teachers of the above class, beg leave to say that these classes have been commenced but, say, four months, and although during even that short period great progress in technical knowledge has been made by the students, who number between forty and fifty, it would be a rash proceeding to recommend them as especially skilled workmen on the strength of that alone. The truth is, we have no means of ascertaining whether they have had this theoretical knowledge put to a practical test in actual execution; or, even if we had, it is not our mission to keep a supply of such like articles of merchandise, to serve out to those who choose to apply for them, nor have we any guarantee that the men would go where we chose to send them. Much less has Mr. Morris any authority to make such a statement.

In the next letter to which I would allude your correspondent, Mr. Solly, for whom I entertain the most profound respect, makes a statement upon the authority of one of the teachers of the bricklayers' class. To this I would beg leave to say that the authority for this statement did not originate with me, simply because I know nothing about the strike other than what I read in the papers, and I am only too sorry the men were not better advised; neither do I know anything about the terra-cotta at the Natural History Museum, and I am careless who sets it either there or anywhere else, although I may say I have no doubt bricklayers can be found who are as able as any other class of skilled workmen to set terra-cotta, feeling, as I do, pretty sure that the greatest skill required in dealing with terra-cotta lies in the manufacture; but I must say just at this time when a bold and honourable struggle was being initiated to advance their status in the building trade, and remove the cause for the prejudice which it is well known does exist against them as a class, it is a pity some other means could not have been found to settle this unfortunate dispute about so trifling a matter.

J. WOODLEY,

The Originator of the Bricklayers' Technical Class.

"MODERN TYRANTS."

SIR,—Your remarks upon this subject in the *Builder* cannot but be regarded as just and equitable. An impartial observer unswayed by prejudice must view the late proceedings at Messrs. Doulton's works with indignation. Such outbursts of petty despotism on the part of trade unionists only tend to damage the institution. The working classes have "gone up like a rocket," and will, if they do not display greater discrimination and judgment, "come down like the stick." The institution of trade unions has probably, more than any other circumstances combined, tended to give an ever-increasing impetus to foreign competition. It is well known that in works of the nature of that at present in dispute, alien aid has had to be procured whenever extra care or delicacy was required in the manipulation. If the trade unions would guarantee that all their members are efficient workmen, the uses of such an institution would be considerably enhanced. An un-

skilled unionist may demand the same amount of wages as his skilled colleague, which proceeding is a palpable and gross injustice, that must ultimately have the effect of deteriorating the technical capabilities of the workmen. That praiseworthy emulation which prompts one workman to excel another is smothered for lack of appreciation and advancement which in other cases would be the legitimate reward of superiority.

What, will be asked, is the use of superior technical education to the unionist? Why should one man make himself superior to another if he is to derive no advantage? Technical education will be in a great measure nothing short of a dead letter if modern advancement is to be held in check by the trammels of unionist regulations, which are entirely opposed to the principles of free trade and legitimate competition.

The boasted privileges of Englishmen,—freedom of thought and action,—are entirely ignored, and the workman quietly permits himself to be ruled by those who cannot even rule themselves. Public opinion is a powerful moral persuasive, against which not even trade unions can hope to make a successful stand. There cannot be a doubt that if we are to be favoured by many more such instances of error on the part of the officials of the trade unionists as that recently displayed at Messrs. Doulton's, public opinion will ultimately assert its prerogative, and trade unions will become a thing of the past, and measures will be adopted in future by working men for their own protection that will be more compatible with the interests of art, improved technical education, and modern enlightenment.

AN ARCHITECT.

DENCHWORTH CHURCH.

SIR,—I see that in a report of the proceedings of an Archaeological Society at Denchworth, Berks, you have printed a gross attack made on me by the clergyman of that parish. He charges me with having restored his church in (I think) 1854, and with having destroyed a whole series of interesting things in so doing. I think by this time my detestation of anything like destructive restoration is pretty well known. In the case of Denchworth Church I am perfectly certain that I never ordered the destruction of a piscina, or of a rood beam, or of old brasses, or indeed of any old furniture or features. The work I really did was so small that I cannot charge my memory with its exact nature. But the proceedings I am charged with would have been quite as revolting to me in 1854 as they are in 1876. I find in my account-books that on September 29th and December 17th, 1853, I visited Denchworth, and that my charges for these two journeys (and I made no others) and for my design for whatever I did design, amounted to the large total of 10*l.* 10*s.*, which must refer therefore to an expenditure at the outside of 150*l.*, obviously not enough for the various works which the clergyman of Denchworth, in his zeal for truth, charges me with being responsible for!

I do not suppose for an instant that a man who makes an attack in such ungentlemanly language as this clergyman thought fitting, will be able to acknowledge that he has made some mistake. Another time he may as well apply to the person concerned before he makes his charges.

GEORGE EDMUND STREET.

SUPPLY OF WATER.

SIR,—In reply to your correspondent "Peto," he should have put his question more fully. Not having stated the quantity of water the pipe is intended to convey, it is impossible to say the diameter of the same and its consequent thickness; but assuming that the supply will be distributed under the constant system, and that the daily consumption per head per day will be twenty gallons, and as this quantity, practically, would be required during eight hours of the earlier part of the day, the discharge per minute on this data would be 17 cubic feet; the pipes should be of cast iron, 3 in. diameter, and the metal $\frac{1}{2}$ in. thick; length of pipes, exclusive of socket, 9 ft.; depth of socket, 3 in.; and the thickness of lead joint $\frac{1}{2}$ in.

L. L.

CHALK.

SIR,—Will any of your numerous readers give me some information respecting the proper treatment of chalk previously to its being used for building purposes, for both inside and outside work?

C. W.

INDUSTRIAL DWELLINGS IN THE
MIDLAND COUNTIES.

The first general meeting of shareholders of the Midland Improved Industrial Dwellings Association (Limited) was held in Derby on the 10th inst.

The report presented by the directors stated that the object for which the association was formed was to endeavour to meet in some degree the great and pressing want which exists in some of the Midland towns for increased and improved house accommodation. That this could be done successfully, both in a sanitary and financial sense, had been satisfactorily proved by the operation of similar associations in other towns. During the last four months numerous facts had come to the knowledge of the directors, which showed beyond a doubt that no part of the kingdom stands more in need of the operation of such an association than the large Midland towns. Instances of great individual inconvenience are being frequently brought under their notice. As the main object contemplated was to deal with the more densely-populated parts of Derby and Nottingham, attention was first directed to these localities, and the directors had secured what were considered very suitable sites in both towns for the erection of blocks of improved dwellings. A portion of the buildings on the site in Brook-street, Derby, is already being converted into a model lodging-house for single men, with accommodation for sixty-eight beds. The beds will be enclosed by partitions 7 ft. high, giving to each the privacy of a separate room. The dining-room, kitchen, lavatory, and sanitary arrangements will be made as complete as possible. Tenders had been received for the erection of the first block of buildings on another portion of the site, which were under the consideration of the directors. Numerous applications had already been made to the manager for the shops and dwellings. The site chosen in Nottingham, at the corner of Heathcote-street, was considered a very advantageous one, and the directors would be prepared to deal with it as soon as a sufficient amount of capital has been subscribed. Important local support had been promised in Chesterfield, on condition that the first want supplied there should be a model lodging-house.

THE DEATH IN A SEWER AT
BATTERSEA.

CONCLUSION OF THE INQUEST.

On the 12th inst. Mr. Carter, coroner for East Surrey, resumed, for the tenth time, the adjourned inquest on the body of John Thomas Lomas, a sewer-flusher in the employ of the Metropolitan Board of Works, who was poisoned in the New-road Sewer on the 9th August last, under circumstances already reported.

Mr. Frederick Alfred Manning, residing at Effingham Lodge, Upper Norwood, was called by Mr. Pettigall, and deposed that he was an analytical chemist, and had given much attention to sewage matters. He had made a thorough inspection of Mr. Wallace's premises. He considered that the cause of the suffocation of the deceased was the decomposition of the sewage matter in the hot weather, and in a confined space. This fact would, in his opinion, be sufficient of itself to cause death. The sewer was not now large enough to drain the important district through which it passed. He did not attribute the death to anything connected with Mr. Wallace's works.

Mr. Thomas William Keats was next called by Mr. Straith. He deposed that he was consulting chemist to the Metropolitan Board. Fatal accidents of this kind were very rare, although no doubt the men became affected by the sewer gases. Out of forty accidents, going back to 1876, only five were due to sewer gases. He had heard the evidence of the sewer men. He was of opinion, in reference to the men working in the morning, that they must have been inhaling the same gases as after dinner. He thought death was caused by the presence of sulphuretted hydrogen.

At the conclusion of Mr. Keats's evidence the coroner announced that the jury had agreed upon their verdict, which the foreman then delivered as follows:—

"We find that John Lomas was killed by poisonous gases emanating from refuse chemical matter discharged into the New-road sewer from the works of Mr. Hugh Wallace, but by whom they were thrown in there is no evidence to show. The jury are of opinion that great care is due to the Wandsworth Board of Works for permitting those chemical matters to be discharged into the New-road sewer, thereby perilling the lives of the men who were employed in the sewers, and endangering the health and comfort of the inhabitants of the neighbourhood. We wish to add, in conclusion, that we consider the greatest praise is due to the sewer-flusher Gates, who so bravely went into the sewer in a half-stupefied state, when almost dead himself, and so rescued the other men, Scott and Plester, who must have otherwise lost their lives as well as the deceased; and we sincerely regret that we have no institution in this country for awarding a medal to the men who save life in sewers as well as in rivers."

Mr. Thomas Buckham, C.E. (New Wandsworth), writes:—"Will you kindly allow me to state, in reply to Mr. F. A. Manning's opinion at the recent inquest, that death had resulted from decomposition of sewage-matter in a sewer not large enough to drain so important a district, that this sewer was designed by myself, submitted to the Metropolitan Board of Works, and approved of by their eminent engineer, Sir Joseph William Bazalgette, C.B.?"

At the meeting of the Metropolitan Board of Works on the 13th inst., the clerk read the result of the coroner's inquest as given above. Mr. Richardson, in moving that this matter should be referred to the Works and General Purposes Committee, with power to confer with her Majesty's Government, stated that it was desirable that the Board should have a controlling power over chemical works similar to that exer-

cised by the Board in respect to slaughterhouses, and he could not imagine a stronger case in support of this than this case of death in a sewer at Battersea.

SEWERAGE MATTERS.

Ripley.—The Local Board of the district of Ripley, Derbyshire, having applied to the Local Government Board for permission to borrow 3,000*l.* for the purchase of about thirty acres of the Padley Hall Farm for the disposal, by means of irrigation, of the sewage from the northern side of their district, a public inquiry was held by Mr. Robert Morgan, C.E., in Ripley, on the 22nd ult. The Board was represented by the chairman and several other members, with the clerk to the Board; and the application was supported by Mr. R. Argile, jun., the engineer of the proposed works. There was no opposition, and it was understood that there would be no difficulty in obtaining the consent of the Local Government Board to the proposal.

Oxford.—Great progress has been made during the past year with the Oxford main drainage scheme. Most of the heavy works have been completed, including the outfall sewer from Christ Church Meadow to the pumping station at Littlemore; the western sewer, from the river Cherwell through Christ Church Meadow, St. Aldate's, St. Ebbe's, and St. Thomas, to Osney; the north-western sewer, from Titmouse-lane, through Worcester College Gardens, to Albert-street, Jericho; the short length of the north-eastern sewer across Merton Field, which links the drainage of the central and north-eastern part of the district with the outfall; the eastern sewer, through St. Clement's, collecting most of the drainage east of the Cherwell; and nearly the whole of the sewer across the valley to unite New Hincksey with the outfall; besides a large number of branch mains; in all,—three miles of brick culverts, varying in size from 4 ft. 6 in. by 3 ft. to 2 ft. by 1 ft. 4 in., and 11½ miles of pipe sewers and surface drains, ranging from 18 in. down to 6 in. in diameter. On these works it has been necessary to carry out several difficult tunnelling operations, viz.:—Underneath the Castle Tower and other County Gaol premises adjoining, close to the Mill, and at a lower level than the bed of the river; under the Great Western Railway near the station; the malthouses in Titmouse-lane; the house against the Canal Wharf, and other places. Cast-iron tubes, encased in concrete, have been laid underneath the two branches of the river at Pacey's Bridge, and the Canal has been crossed at the Goods Wharf. The sewers have also been carried twice under Trill Mill Stream, and a third crossing is now in hand. A dam has been put in for laying an inverted syphon under the river at Osney, and a similar syphon crossing the main river near Saunders' Bridge is partly done. These last-named works have, however, made but slow progress, owing to the obstacle presented by the hard conglomerate below, through which the piles have to be driven, and the consequent difficulty of making a watertight dam. A considerable number of house-connections have been made, and about half the district is now in communication with the new system, the old outlets into the rivers and streams being temporarily used, and the engineer (Mr. W. H. White, C.E.) anticipates that the works within the city will be nearly or quite finished this year, except the remaining house-connections. The Board has purchased about 350 acres of land for irrigation, and the works necessary for that purpose will be commenced shortly.

Dudley.—The Earl of Dudley has offered to take the whole of the sewage from the drainage of Dudley on to his farm free of expense, and to find an engineer to undertake the preparing of the sewerage scheme. The Town Council has decided to accept the offer of his lordship. This will, it is said, save the ratepayers 50,000*l.*

Dublin Waterworks.—The Dublin papers report a serious burst in the Ventry pipe, about half a mile from Enniskerry. The pipe passes under the river which flows between Enniskerry and Bray, and the burst has taken place right in the centre of the stream, a troublesome place to get at by reason of the swollen condition of the river. Large stones were driven aside, and the water issued from the pipe in great volumes, considerably adding to the size of the stream. If heavy floods come, there is reason to fear that Dublin will be short of water.

THE GROWTH OF LANCASHIRE.

A NEW valuation of Lancashire, ordered by the county magistrates, for county rate purposes, has just been completed, which shows the great expansion which has taken place in the buildings and population of the several Lancashire towns within a very recent period. Under the new valuation the rateable value of the county is now 15,638,162*l.*, as compared with 12,552,000*l.* in 1872, being an increase of 3,086,162*l.*, in four years, or about 20 per cent. over the whole county, but the increase in the towns shows a much larger percentage, the valuation in some cases being more than double that of 1872. The town of Barrow-in-Furness, of which we have spoken, stands at the head of the list, the new valuation of that town being 167,492*l.*, as compared with 75,652*l.* in 1872, being an increase of 91,840*l.*, or more than 120 per cent. in the four years. This increase indicates an enormous amount of building, in houses and manufacturing and other business establishments, which has been going forward here. The comparatively young town of Southport is next in order of increase, the new valuation being 168,172*l.*, as compared with 91,870*l.* in 1872, showing an increase of 76,302*l.*, or about 80 per cent. in the four years. The new valuation of all the large towns also shows a large percentage of increase, that of Manchester being 2,243,406*l.*, as compared with 1,766,268*l.* in 1872, an increase of 477,138*l.*, or nearly 25 per cent.; Liverpool, 3,027,380*l.*, as compared with 2,782,193*l.* in 1872, increase 245,187*l.*, or about 9 per cent.; Salford, 629,514*l.*, as compared with 460,498*l.* in 1872, increase, 169,116*l.*, or about 35 per cent.; and Bootle, 103,770*l.*, as compared with 68,660*l.* in 1872, increase 35,110*l.*, or about 50 per cent. The two last-named boroughs may be regarded as portions of Manchester and Liverpool respectively, as they immediately adjoin the two great Lancashire towns.

THE NEWCASTLE ASSIZE COURTS.*

SIR.—Provincial architects have fondly imagined hitherto that the practice of "touting" for commissions was confined to a "limited company" composed of the rag end of the profession. That pleasant delusion has been rudely dissipated by the statements in your paper of the 16th September as to the proposed new Assize Courts at Newcastle. From that statement, in the absence of all explanation from Sir G. G. Scott, the provincial architects aforesaid may conclude that the practice of their London brethren is different from theirs, in the matter of "touting"; seeing that one of the most eminent architects in London, who was lately President of the Institute, condescends to practise it. It may be an unfounded rumour, but it is hinted that the commission for the proposed Hook Memorial Church at Leeds was obtained by similar means.

Already the example set has been followed, as I note in your paper of the 7th that a Mr. Frere, of London, has written to the Corporation of Great Yarmouth, expressing a "strong desire" to make designs for their new Town-hall, almost in the same terms as Sir Gilbert used in the Newcastle case. Can it be that the depression of trade is arresting the flow of commissions to certain offices? However that may be, the matter is one that requires explanation if architects are still to be regarded as exercising a profession and not a trade. I inclose my card.

A PROVINCIAL ARCHITECT.

CERTIFICATED HOUSES.

In these days of sanitary questions, there is one which has lately been brought forward by the Society of Arts. This society proposes that an Act of Parliament should be passed requiring every house newly built to receive a certificate from an official that the sanitary arrangements are all that are required to render the house tenantable. I have observed numerous complaints from new tenants that when they have taken possession of their houses they are put to an extra expense to put their drains in order. A great deal of this annoyance might be saved if the District Board of Works would at once appoint an official surveyor, who was really competent to give an opinion from his special

* We continue to receive so many letters on this subject that we cannot do less than print one of them. A few words from Sir G. G. Scott would doubtless remove the impression which widely exists.

knowledge of house arrangements. This officer would not require a high salary, as his remuneration would be by his examination of houses of intending tenants. If the purchaser would, in his agreement, put in the words "subject to the district sanitary surveyor's certificate," it would give the purchaser some security that he is buying a healthy home for his family, and it would encourage speculative builders to be careful in laying their drains, knowing that if they did not attend to these matters their property would be tabooed. If such a competent surveyor were appointed, and the purchaser were content to buy a house without his certificate, he would have no one to blame but himself, and he might discover that he had been penny wise. This, it seems to me, would be a simple remedy pending an Act of Parliament, if it did not supersede the necessity of one.

A. B.

ACCIDENTS.

On the 9th inst. Dr. Hardwicke, coroner for Central Middlesex, concluded an inquiry at Middlesex Hospital relative to the death of Robert Henry Tennant, a painter in the employ of Mr. John Crossley, of Newark, the sub-contractor for the painting of the interior of All Souls' Church, Langham-place. On the 19th ult. deceased was at work with another man in decorating the roof of the church, when a temporary platform which had been slung to the general scaffold to enable them to reach the corners better gave way, both being precipitated violently to the ground, deceased being so much injured that he died before he reached the hospital. The jury deliberated a considerable time, and ultimately returned a verdict of accidental death; but they desired to add that the foreman should exercise greater vigilance over the men and prevent the erection of unsafe scaffolds. They thought, too, that the contractors should do something in the way of compensation to the widow.

On the 10th inst., Mr. W. W. Robinson, deputy coroner, held an inquest at the Radcliffe Infirmary, Oxford, on the body of Robert Henry Williams, aged 15, clerk to Messrs. Parnell & Son, of Rugby, who are erecting some new works at Keeble College. The deceased fell from a balcony at Keeble College the previous day. It was stated in evidence that the deceased was engaged in measuring some new work the previous afternoon on a balcony which was only 6 ft. from the ground. While alone on the balcony, and with the measuring tape in his hand, he stepped backwards off the balcony and fell into a hole 6 ft. or 7 ft. deep, which was made for the drain. Some part of his body struck against the trench, which was shored up. He was picked up, but never spoke. Mr. H. S. Brantfoot, the house physician, said that the deceased lived about two hours and a half, although he was unconscious. There was a fracture of the right base of the skull. Verdict, "Accidental death."

On the 16th inst. an inquest was held by Mr. Humphreys at the German Hospital, Dalston, touching the death of George Johnson, aged 61. Deceased was carman in the employ of Mr. Izard, contractor, Lea Bridge. On the 11th inst. he was assisting his master in unloading a large block of stone at the Hoe-street Station of the Great Eastern Railway, when the jack slipped, and deceased, in endeavouring to save it, fell over the side of the truck on to the handle of the shunting points. He was conveyed to the hospital and died the same day. Verdict, "Accidental death."

MASTERS AND MEN.

Dumbarton.—On the 6th inst. the apprentice carpenters in the employment of Messrs. Denny, Bros., struck work on account of some dispute as to "allowance money." The Messrs. Denny have a number of apprentice carpenters employed on a new vessel in the Gareloch, which is getting ready for sea. They do not regard the "allowance money" received as sufficient, and therefore refused to continue working there. Those apprentices employed in the yard, fearing they might be sent to supply the places of those who left, have refused to work, and joined in the strike.

Greenock.—At a meeting of Greenock operative masons on the 10th inst., it was resolved to come out on strike on Monday, the 16th inst. The men recently asked an addition of 3d. to their present rate of wages—9½d. per hour—and this being refused, they offered to take 3d. increase, but this demand also being resisted, a strike has been resolved upon.

DILAPIDATED HOUSES IN CAMBERWELL.

ORDER FOR DEMOLITION.

At the Lambeth police-court on the 12th inst., Mr. Napier, from the Solicitor's Office, Metropolitan Board of Works, appeared before the magistrate in reference to dilapidated houses in Havil-street, Camberwell. The houses were in a very bad state, and it was absolutely necessary for the public safety that measures should be at once taken for their demolition.

Mr. Jarvis, surveyor of Camberwell, said that Havil-street was in his district. He surveyed the premises on the 14th of July, and had then certified to their dangerous condition. They were in a very dilapidated state, the party-walls being separated from the front wall. The front wall was shored up. Notice had been given to the owners to pull them down.

The magistrate made an order that they should be demolished within fourteen days.

CURIOUS CLAIM FOR DAMAGES AGAINST A CONTRACTOR.

LEMAN V. WEBSTER.

In this case (heard in the City of London Court, before Mr. Besley, deputy judge), the plaintiff sued the defendant, Mr. Webster, contractor for the Holborn Viaduct Hotel, for 5l. damage done to his coat by dirty water splashing from the wall of the hotel.

The case had been adjourned, at the request of the defendant's counsel, for a tailor to give evidence as to the actual amount of the damage, as it was contended that the plaintiff's claim, even supposing he was entitled to recover, was excessive. The tailor who was called said that the coat did not cost anything like 5l. originally, and the damage was simply a little dirt, which could be completely removed by a clothes-brush.

Defendant's counsel submitted that plaintiff was, therefore, not entitled to anything. If a hansom cab splashed a man's clothes in the street, was he entitled to recover for cleansing them?

His Honour replied that any one would be entitled, and he would be very happy to make the hansom cab pay damages if it went splashing along. There was a great deal too much of people doing what they liked in the present day. What obligation was there on the plaintiff or on any tailor to brush the coat if it only cost sixpence to brush it?

Defendant still submitted that even then the plaintiff should only have sixpence for brushing the coat.

His Honour said the plaintiff ought not to be put to the expense of enforcing his legal rights against the defendant. It was the duty of contractors to protect passers-by from damage from the works they undertook.

Judgment for plaintiff—1s., with costs for his attendance on each occasion.

DISINFECTING APPARATUS FOR BIRMINGHAM.

THE Health Committee of the Corporation of Birmingham have recently caused to be erected a number of buildings, wherein the clothes, bedding, &c., of persons suffering from contagious diseases in the town may be thoroughly disinfected. The premises are situated in the Bacchus-road, and at some distance from the Borough Hospital. They consist (according to the *Birmingham Gazette*) of several detached buildings, within an enclosed yard, and are apart from any dwelling-houses, with the exception of a cottage which has been erected for the residence of the person in charge of the station. The principal building, that in which the work of disinfection will be carried on, stands in the centre of the yard. This building is square, and its interior is divided into two parts. Occupying an equal space in each compartment, and supporting that part of the wall built over it, is what at first sight appears to be a fire-proof safe, measuring 6 ft. 5 in. square. This is the apparatus, which is the invention of Dr. Ransome, of Nottingham. The infected clothing is conveyed from the residence of the patient in a van provided for the purpose by the Corporation, and in charge of a servant in the employ of that body. It is taken to the station, the conveyance being admitted at a gate on one side of the yard, and at some distance from any building. If dirty, the articles are washed, but the process of cleansing will be seldom resorted to. The clothing is then put into the large iron box by a separate door on one side, the wearing apparel being hung up, and the bedding placed upon a perforated floor. The door is then closed, and the compartment becomes air-tight. By means of jars in a stove beneath, the temperature in the chamber is raised to between 250 and 270 degrees, and after remaining there for four or five hours the clothes are completely disinfected by the heated air, and all germs of disease have disappeared. The articles are then taken out from another door on the other side of the disinfecting wall, and are conveyed to their owner's premises in a separate van, which is drawn by a separate horse, driven by another man, and leaves the station by a different gate. The principle of isolation and disconnection is

thoroughly carried out in every respect, the receiving-rooms being completely separated from the rooms through which the clothes pass after undergoing the process of disinfection. The officials on each side are isolated, and the horses and vans are kept in different parts of the station. The station has cost altogether about 1,000l.

MONUMENTAL.

Edinburgh.—Messrs. Stewart, McGlashan, & Son, Edinburgh, have completed the erection of a granite monument over the last resting-place of the late Mr. Brownlow North, in the Dean Cemetery, Edinburgh. The monument is in the form of an obelisk, resting upon a basement, the entire height being 13 ft. 6 in. It is in unpolished grey granite, three polished panels being introduced at the base, upon the front one of which is an inscription.

Broughton.—A tablet, from the design of Sir Gilbert Scott, has been lately placed in Broughton Church, to record the career of the Hon. Edward Twisleton, youngest brother of Lord Saye and Sele.

SURVEYORSHIP ITEMS.

Stafford.—At a special meeting on the 12th inst., the Stafford town council proceeded to the election of a borough surveyor and superintendent of the sanitary department. There were originally sixty-two applicants, from whom the special committee selected five candidates to attend before the council, viz.,—Mr. J. H. Duckinfield, of Huddersfield; Mr. T. L. Johnson, of Cardiff; Mr. J. B. McCallum, of Liverpool; Mr. J. Parker, of Bridgewater; and Mr. J. H. Taylor, of Facit, near Rochdale. The testimonials of each candidate were read, and the candidates were called into the room and interrogated in the order named. An examination it was found (according to the *Staffordshire Advertiser*) that there were some serious discrepancies between some of the original testimonials of the first-named candidate and the copies supplied by him to the council, and on being questioned concerning them, he volunteered to retire from the contest. His testimonials were forthwith handed to him, and his expenses were disallowed. One or two discrepancies were also discovered between the original and copy testimonials supplied by Mr. Johnson, and he attributed the errors to the printer. Mr. McCallum was elected, and promised to commence his duties in a month.

Moreton-in-Marsh.—Mr. Edmund Jesty, of Fonthill Gifford, near Salisbury, has been elected by the Moreton highway board surveyor of the district, to succeed Mr. Alfred Stephens, resigned. There were twenty-four candidates.

Cheshire.—With reference to the vacancy for a county architect and surveyor for Cheshire, "Lincoln's Inn" writes to the *Chester Chronicle* as follows:—"I happened in passing through Chester to stay for a little at the Grosvenor, and there met a gentleman whom I well knew, and who is on the commission of the peace for Cheshire. He mentioned to me, among other items of news, that an officer of the army had been found to fill the above appointment, and the choice was to be confirmed on Monday. He belonged, he said, to an ancient and very influential family in the county—a circumstance he thought likely to be of advantage, as it would form a sort of connecting-link between the commonalty and the county families, which would be most beneficial to all parties concerned. I replied that the benefit to some of the parties concerned was obvious enough. Surely my informant is incorrect in his information?"

At the adjourned Quarter Sessions for the county of Chester, held on Monday, the 16th inst., at Knutsford, a surveyor was appointed for the county. There were over 100 applicants, among them a lieutenant-general, a lieutenant-colonel, and several other officers of the army. Six candidates were selected, viz.:—Mr. Adam T. Blandy, Mr. Stanhope Bull, Mr. W. Gordon Cotton, Mr. A. W. Maberly, Mr. James Morgan, Mr. C. W. Whitaker. These gentlemen attended the meeting; and Mr. Stanhope Bull was elected, Mr. Cotton coming in second, and Mr. Maberly third. The salary is 500l. per annum, with travelling expenses and a commission on works executed.

Cheadle.—Mr. E. Carnwell has been appointed surveyor and inspector of nuisances to the Cheadle Rural Sanitary Authority.

Great Crosby.—Mr. G. E. Thoms has been appointed surveyor and inspector of nuisances

to the Great Crosby Local Board and Urban Sanitary Authority.

Dover.—Mr. John Harvey, the Dover town surveyor, was going to his residence on Castle-hill, on the 11th inst., when he was attacked by four soldiers, who knocked him down and robbed him of a gold watch and chain. The men have been committed for trial.

Wandsworth.—At a meeting of the Wandsworth District Board of Works, on the 10th inst., Mr. Stolz moved that the General Purposes Committee be instructed to inquire into certain charges made against the surveyor to the Board, and read a long statement reiterating the charges he had brought against the surveyor on previous occasions. Dr. Brown seconded the motion. Mr. Forster proposed an amendment, that the question be referred to a committee of the whole Board. The charges had been investigated by a committee of nine, and found to be unsubstantiated. Mr. Dulley seconded the amendment. After some further discussion the amendment was carried almost unanimously.

SOUND-PROOF FLOORS.

In the course of the interesting paper on "Improved Dwellings for the Rich," not long since read before the Society of Arts by Mr. T. Roger Smith and Mr. W. H. White (published in your columns), it was mentioned that the floors of "flats" might be made equivalent to horizontal party-walls (i.e., fire and sound resisting), and composed of rolled iron entirely enveloped in concrete. I should much like to know how this sound-resisting quality is to be obtained. Having recently almost entirely re-modified some offices, one story was subdivided into two by the interposition of a floor, the composition of which was as follows:—There were rolled iron joists 5 in. deep placed about 2 ft. apart. Between them the space was filled in with Portland cement concrete mixed with coke; the soffite floated with fine gauged stuff, and top rendered with Portland cement to form floor, which was further covered with linoleum. The space between the floors was therefore remarkably little, being altogether but 6 in. I have no hesitation in saying that this solid floor is a superior conductor of sound to an ordinary wooden one. The sound of a pencil dropped on the upper floor makes the by-no-means nervous occupants of the rooms under jump. The hard floor, instead of deadening such noises, seems to sharpen them. In the case alluded to, the assistants are on their guard, the principal's rooms being underneath, so there is no grievance. But what about a bevy of romping children careering about just over some crusty old bachelor's chambers in those "flats" which Messrs. Smith and White advocate? Surely an ordinary wood floor (though not so proof against fire), with lath-and-plaster ceiling well "packed," would transmit sound far less than concrete. I do not suppose a concrete floor 12 in. thick would be less sound-proof than one 9 in. or 6 in. thick. I may add, on the other hand, that a great recommendation to the concrete floor consists in its equality of temperature. I have found that in winter the rooms are warm; in summer deliciously cool, notwithstanding the sun shines on them from about eleven to three o'clock. I feel sure the presence of concrete must be at the bottom of this. Having carefully read through the whole of the paper and discussions on concrete lately published in the Institute Transactions, I did not find the points just named fully elucidated there, so I appeal to your columns.

I should like also to ask (while on the subject of acoustics) how it happens that a partition constructed according to the following description is not as sound-proof as an ordinary quartered lath-and-plastered partition: two thicknesses of inch boarding, one placed vertically, the other horizontally, with very thick hair-felt between them, the boards canvassed and papered on the outside edges.

INQUIRER.

Royal Archaeological Institute.—The Town Clerk of Hereford has received a letter from Mr. Fortnum, one of the vice-presidents of the Archaeological Institute (in the illness of the hon. secretary), stating that "the unanimous feeling of the council was, that Hereford be fixed upon as the city in which our Congress for the coming year, 1877, shall be held." Hereford has already been visited by the Cambrian Archaeological Society and the British Archaeological Society; by the last-named so lately as in 1870.

THE NEWBURY MUNICIPAL BUILDINGS.

THE LATE CASE OF CROOK v. BROWN.

SIR,—I am always unwilling to enter into a controversy publicly, but as you have reported this case, in which I was the complainant, you will, I trust, in justice to myself, permit me to give the building section of the public the real version of the affair.

In the first place, the contract provides that the old materials which were sound and fit for use were to be re-used; and in the next place, it provided that if any unsound or improper materials were used, the contractor should have notice in writing to remove them, and if he failed to do this, then the architect should do so at his cost; but the magistrates refused, as I think very unfairly, to receive the contract or specification as evidence, simply because the clerk of works was not a party to it. Now, I wish to ask what is the duty of a clerk of works, if it is not to study the plans and specification, and see the work carried out accordingly? But here was one who had evidently done neither, and at this very time was under notice of dismissal, for reasons best known to himself and his employers. These were the real facts of the case:—A moulded string-course of Bath stone, 3 in. thick, was worked and fixed in the building, which he condemned, because it was in lengths of from 15 in. to 2 ft. If he had looked at the detail drawings he would have seen that it was strictly in accordance therewith. I, however, had the stone removed, and some other worked and fixed in its place, which he also objected to, not for the reason that it was short, but because it was not new stone. Now, sir, all practical men, especially masons, know full well that the longer Bath stone is exposed to the air the harder and better it is, as it thereby becomes seasoned, and will not be affected by frost, as new stone often is. Why, our stone merchants make it a point of recommending the stone that has been longest out of the quarry, and this very stone was thoroughly sound and much harder than the new stone; it has been seen by some of the best, oldest, and most practical masons in Newbury, and pronounced by them to be excellent. Well, sir, this clerk of works, without giving me notice, either verbally or in writing, to remove the stone, takes a heavy hammer, and, in a fit of ill temper, deliberately smashes it before it had been fixed two hours; and it was to raise the point and try the right of any clerk of works to violently take the law into his own hands and destroy a contractor's property that I brought the case before the justices. Perhaps it was not the right tribunal to have appealed to, for the reason that the gentlemen composing it were not, by their vocation and knowledge of building matters, competent to deal with it; but I should be perfectly content to submit to the judgment of any practical men, and abide thereby.

However, the matter is not of sufficient importance for me to take any further notice of it. Although I did not obtain a decision in my favour, I have to a certain extent accomplished my purpose in drawing the attention of others who like myself are engaged in the trade to the question, and I have no doubt that clerks of works will in future be careful not to exceed their duties as this one did, on the authority of Mr. Money, the architect, who honestly and honourably stated in his evidence that it was a course he could not justify, and should not himself have pursued, and further that he had no feeling in the matter, neither was there any unpleasantness between himself and the contractor, which I am very happy to confirm. Unfortunately he was from home at the time this happened, or the stone would not have been broken; for if he had directed me to remove it I should have done so, though I am quite sure that had he seen the stone before it was broken he would not have objected to it, as better could not possibly be.

JOHN CROOK.

Books Received.

Plumbing: a Text-book to the Art or Craft of the Plumber. With Supplementary Chapters upon House Drainage. By WILLIAM PATON BUCHAN. London: Crosby Lockwood & Co.

This is intended as a text-book for the apprentice-plumber, the author of it, a member of the trade, having felt the want of such a treatise himself when an apprentice. The best use of the book in this way would be to give the apprentice an idea beforehand as to what he was to learn and look out for, and systematise the whole subject for him a little, which is of course a help to learning, and may enable the apprentice to look at the workshop operations with more understanding eyes than if he had to pick it all out as he went on, and find the reason for everything by inquiry. Otherwise, there is nothing in the book beyond what would be learned in the ordinary routine of the trade, nor could it be accepted at all as a complete treatise on plumbing; it is rather a series of chapters on the methods of various plumbing operations. The writer pays a good deal of attention to considerations of drainage, trapping, and ventilation, on which he evidently writes with some experience. The book is rather roughly put together, and written in what we should call "specification English," but it may be useful, and is of a convenient size for a book of reference, to be kept "handy." The writer alludes in his introduction to the importance of having the lead work, piping especially, which is now so extensive and intricate a portion of house-fitting, properly and carefully carried out; and nothing can be more true. But the question might perhaps be entertained whether the abolition of lead-piping, the possibility of substituting something that would be an improvement on it, is not an ultimate object to be

looked to. Lead-piping is very expensive; it is not the best thing, in a sanitary point of view, to convey the water through; it is always getting out of repair, and under certain atmospheric conditions bursting, and is perhaps the cause of more disagreement between landlords and tenants than any other element in repairs to house property. Moreover, if we could get rid of the plumbers, there would be a considerable annual saving in fire insurances, and a better chance of preserving cathedrals, theatres, and other large buildings from those conflagrations which occur when "the plumbers are repairing the roof." However, in the absence of any immediate substitute, it is probable that plumbing may last our time; and so Mr. Buchan is to be commended for his efforts to improve it.

The Landscape Gardener: a Practical Guide to the Laying Out, Planting, and Arrangement of Villa Gardens, Town Squares, and Open Places, &c., &c. By JOSEPH NEWTON, F.R.H.S. London: Hardwicke & Bogue.

This is a rather large title in comparison with the scope of the work. It contains twenty-four plans, or drawings, which are something between plan and perspective, of different schemes for laying out gardens of moderate size, chiefly in relation to private houses. As, however, the author says that "the credit of the designs belongs to Dr. Siebek," and as the letterpress is merely an explanatory description of each design, it is not very easy to see why Dr. Siebek's name should not rather be on the title-page. The drawings are untinted, and merely show the direction of walks and the disposition of trees, whether singly or in what the French gardeners call *massifs*: the designs are all in one style, and, we confess, appear to our eyes to have a most remarkable and monotonous similarity of disposition. The variety may lie in the nature of the trees employed, which are catalogued with references to numbers on the plans; and we must presume, are arranged with the view of producing pleasing combinations or contrasts of tints and foliage. In this way the book may be useful to those who wish to have some guide as to what trees they should procure for planting in various positions; but as the designs do not show in the least the varying character or colour of the vegetation, it is impossible to form any judgment as to what the result would be. The plans are all in what is called English taste, showing studiously sinuous walks, arranged with a kind of unsymmetrical symmetry. Nothing could be less calculated to look well on paper; though in execution this method of laying out, when the various walks are sufficiently masked by raising the ground or by planting, has the effect of giving an impression of space and extent greater than the real area covered. We ourselves rather like a garden to be a garden,—to be openly and confessedly artificial, rather than to aim at a constructed irregularity, an imitation of nature. Tastes, however, differ in this respect. As a reference-book for the titles of trees fitted for ornamental planting, the volume will be useful; but it hardly makes the subject attractive.

Miscellaneous.

Liddell's Improved Brick-making Machine.—Every good step in the direction of the object of this machine is noteworthy. The advantages claimed for this machine over others are numerous. For example, it is less liable to breakage, being more than a half heavier, consequently much stronger in all its different parts; also having only four bevel wheels, while other machines of a similar construction have no less than ten bevel wheels, which, with their attendant shafts and brackets, often become a total wreck, simply through a stone or any other hard substances getting into the gearing. The strain on the amount of gearing in these is very great, and either causes the shafts to jump out of their places or brings the machine to total ruin. In Mr. Liddell's machine the connecting-rods from cranks to slides are so fitted with safety springs that should any stone or piece of iron get into the slides the springs allow the connecting-rods to pass, and thus prevent injury, and when the impediment is removed this machine resumes its work with little or no trouble. It is so compact and simple and complete in its construction, that all the principal parts can easily be got at for repair.

Monuments in Westminster Abbey.—A correspondent writes:—"The appearance of the north transept has been completely metamorphosed; a new vista to the south-east having been thrown out, by taking down a brick wall which not only surmounted but completely invested an ancient stone screen; and the columns of the arcade on its western side having been disengaged from the monuments, by the removal from these latter of their needless and heavy backgrounds, thereby disclosing a fact which the cursory visitor might be forgiven for not knowing,—viz., that the transept is possessed of a western aisle, lighted by large handsome windows. The importance of the works carried out cannot possibly be over-estimated; they are an earnest protest against the notion, which has been allowed of late years too much to possess the public mind, that the Abbey is but a museum; and also against the system of hacking and cutting about its walls to make room for what some call busts, but others figure-heads. Though generally understood that to Lord John Thynne, the venerable sub-dean, the public are indebted that this poor and tardy act of justice should at last be rendered to the Abbey, it is not too much to say that, had not the works been carried out under the watchful and sympathetic eye of the Rev. R. Duckworth, the canon in residence, the result might have been far less happy than what we now see. The Dean and Chapter have but commenced a great scheme in which they must not be allowed to stop short; the Abbey requires no more accessions of modern monumental works of art, falsely so called; but if a general clearing out of all that is hideous and incongruous be impossible, at least a reduction in size and a rearrangement of the material with which its interior has been lumbered during the last 300 years are proved perfectly practicable."

Surveyors' Charges on the City Sewers Commission.—At the meeting of the City Commissioners of Sewers, on the 10th inst., Mr. J. C. Davis called attention to the large sums to be paid to surveyors in respect to the property which had been taken by the Commissioners in the Poultry for the purpose of widening the thoroughfare. He thought that an effort should be made to keep these fees as low as possible, as improvements like these were entirely for the public benefit. The Chairman remarked that there could be no doubt this had been a most costly improvement, and, in negotiating for the purchase of the several properties they had enormous difficulties to contend with. The Commissioners invariably agreed with the claimants to pay all surveyors' fees, and, that being so, they had no alternative but to pay the amounts referred to. Mr. Davis also drew attention to the large sum, amounting to between 500*l.* and 600*l.*, to be paid to the engineer, Mr. Haywood, for assistance in his office for the quarter to Michaelmas. The Chairman said there were included in the last twelvemonths' statement certain amounts for improvements which had formerly been spread over four or five years. He added that these items had been considerably increased in consequence of proceedings which had been taken under the Artisans and Labourers' Dwellings Act.

A Benedictine Monastery in the Highlands.—The foundation-stone of a Benedictine Monastery at Fort Augustus, N.B., was laid on the 13th ult. The plans have been prepared by Mr. J. A. Hansom, of London, and by them provision is made for the conversion of Fort Augustus (a stronghold erected in 1729 to check rebellious Highland clans) into an imposing ecclesiastical pile in the Scottish Gothic style,—an edifice comprising, first, a monastery, which will be capable of accommodating 20 monks, each having his own commodious cell; next, a college intended for the education of 80 students; and, lastly, an hospitium, which will furnish means of entertaining about 30 guests, and which, it is expected, will, when complete, be much resorted to, not only by priests in their annual week of retirement, but also by other travellers. For the fitting up of the several portions of the building, Mr. Hansom has provided, and although the walls of the fort are intact, and will be fully taken advantage of, 4,000*l.* will be required to carry out the work. This is exclusive of the church cloisters, which will be erected as soon as the requisite funds are forthcoming, and which it is proposed to design in such a way as will correspond with the characteristics which the quadrangle will now assume.

Lead-stealing from a City Church.—At the Mansion House Police-court, on the 14th inst., two labouring men, named Charles Higgins and James Prendergast, were brought before Alderman Sir R. Carden, charged with stealing a large quantity of lead from the Church of St. Michael, Queenhithe. The church was recently doomed to destruction, the benefice being joined to another under the authority of the bishop and the Ecclesiastical Commissioners, and the building was purchased by contractors, who employed the prisoners and others in the work of demolition. On the 13th inst. the prisoners were seen by detectives during the dinner-hour in Union-street, in the Borough, and from their bulky appearance they were watched. The prisoners turned up the Southwark Bridge-road, and were going in the direction of the City when the officers stopped them, and found 33*lb.* of lead on Higgins and 11*lb.* on Prendergast. There was a large quantity of old lead in the church, and that found upon the prisoners had evidently formed a portion of it. When they were asked to account for the possession of the lead they at once admitted they had brought it from the church. The employer of the prisoners gave them most excellent characters, and said he looked upon them before this as two of the best men in his service. The prisoners both declared that this was the first time they had been guilty of any act of dishonesty, and said that before the officers spoke to them they felt that they had done wrong, and were on their way back to replace the lead they had stolen. Sir R. Carden said it was a sad thing to see working men with such characters as they had received placed in such a position, but under the circumstances he should deal with the case as one of unlawful possession, and fine them 10*s.* each, or fourteen days' imprisonment. The money was paid.

Temple Bar.—At the Court of Common Council on the 12th inst. Mr. G. C. Boore moved that before proceeding with the demolition of Temple Bar, it be referred to the law officer of the Corporation to report forthwith as to whether the Corporation have the power to erect a bar or archway on the site of the present structure. Mr. Phillips expressed his opinion that the motion was merely a subterfuge for the purpose of causing a delay. The Bar was an undoubted nuisance, and ought to be abolished at once. Mr. Lawley denied that any subterfuge was intended. After some further discussion, Deputy Lowman Taylor proposed as an amendment that it be an instruction to the City Lands Committee to take into consideration the rights of the Corporation over the site of Temple Bar, and report forthwith to the Court. The amendment was carried. Mr. R. Cox then moved that the Court proceed with the next business, which was carried. The amendment, therefore, was not put as an original motion, and the matter remains in the same position as before,—namely, that the Bar is to be removed as speedily as possible.

Presentation to Mr. Morris Charles Jones, F.S.A.—At the ninth annual meeting of the Powysland Club and Museum, Welshpool, held on the 5th inst., the Earl of Powis, president, in the chair, a testimonial was presented to Mr. Morris Charles Jones, F.S.A., in recognition of his services as the originator of the club and founder of the museum, and as the hon. secretary of the club. The testimonial consisted of a shield in *repoussé* iron and silver by M. Morel Ladeuil, one of the principal artists to Messrs. Elkington & Co., and being a *fac-simile* of the "Milton Shield," purchased by the Government for the South Kensington Museum. At Mr. Jones's request, the shield is to be placed in the museum at Welshpool. A supplementary presentation, in acknowledgment of Mr. Jones's services as editor of the "Montgomeryshire Collections," published by the Club, consisted of a bronze group representing the death of Tewdric Mawr, King of Gwent and Morganwg, 610 A.D. This group was designed, from suggestions by Lady Llanover, by the late John Evan Thomas, F.S.A., and modelled by his brother, W. Meredyth Thomas, medal student, R.A., London.

Value of Land in Manchester.—About 988 yards of ground in Piccadilly, Manchester, occupied by the White Bear Hotel and buildings at the back, recently fetched by auction nearly 61*l.* per square yard, which considered a large price. The purchaser had an offer of 3,000*l.* over the sum he had paid shortly after the fall of the hammer.

A Considerate Town Council.—At a meeting of the Barrow Town Council, on the 2nd inst., a long discussion took place on the Pennington Waterworks Contract. It appears that the engineer's estimate for the Pennington reservoir was 28,000*l.*, including land, and the tender of Mr. Poole, the contractor for the construction of the reservoir, was 26,650*l.*, being, it is stated, by far the lowest of the tenders sent in. The contract specified that the work was to be completed within twelve months, but the time had been extended to two years. In April, 1875, the contractor applied for an advance of 4,200*l.* on the contract sum, on the ground that the excavations for the tunnel connecting the reservoirs were far harder than was originally supposed. This was granted, but the contractor now applied for an additional sum of 4,500*l.* On the recommendation of the engineer, and to avoid the delay and uncertainty as to the issue of an arbitration, it was resolved, after a long debate, to make another and final grant to the contractors, subject to certain conditions.

Roman London.—Mr. E. P. Loftus Brock writes to say that several interesting sculptures have been met with in the Roman wall, Cannon-street, Bishopsgate, a portion of which was discovered early in September. The objects consist of fragments of moulded cornices of large size, a fluted pilaster, a portion of an engaged and carved shaft, and other architectural members. Above all these in interest is the figure of a lion, very boldly carved, standing above a recumbent lioness (?). This sculpture will occupy a high place among the relics of Roman London on account of the vigorous design and the capital execution of the group. It is in full relief. The lion and some of the other sculptures will be placed in the Guildhall Museum. They have been presented by the architect of the buildings in course of erection on the site, Mr. W. C. Banks.

The Royal Aquarium and Winter Garden, Westminster.—At an extraordinary general meeting of the shareholders of the Royal Aquarium and Summer and Winter Garden Society, Westminster, on the 12th inst., Mr. Stephen Coleman submitted a scheme for the future management of the concern. Mr. Coleman proposes to make several important alterations in the construction and management of the building, such as the removal of the orchestra and organ to the skating-rink end; the abolition of the rink; better arrangements for the convenience of fellows; the formation of a permanent choir; and the introduction of concerts similar to those held at the Floral Hall during the operatic season. The scheme was referred to a committee.

Serious Landslip in Manchester.—The heavy rains of Sunday, the 8th inst., caused the River Irwell to rise to 12 ft. above the low water mark, and caused a serious accident and great damage to property near St. Simon's Church, Salford. A large intercepting sewer has been in course of construction for some time in Salford, and the sewer had been carried to the Irwell, the mouth of it being, however, closed by a dam. During the night the water forced the dam down, and rushing into the sewer, burst it, and several extensive landslips occurred in consequence. Three or four cottages and a beerhouse were partially wrecked. Fears were entertained for the safety of St. Simon's Church, which is only a few yards away from the landslip.

The late Mr. Thomas Clark, A.R.S.A.—The Scotsman announces the death of Mr. Thomas Clark, A.R.S.A., which took place on the 7th inst., at Dundarach, Aberfoyle. The deceased artist was a son of the late Mr. William Clark, W.S., Sheriff-Substitute of Clackmannanshire, and was educated at Dollar. In the course of his schooldays he sustained an injury to the shoulder, the effects of which crippled him through life. Having early resolved to become a painter, he prosecuted in Edinburgh the necessary studies, and in his twentieth year began to exhibit. He was elected an Associate of the Royal Scottish Academy in November, 1865. He painted both in water-colour and oil.

Inverness Town-hall.—At a meeting of the Inverness Town Council, on the 4th inst., the New Town-hall Committee reported that they had instructed Messrs. Matthews & Lawrie to reduce their plan in terms of instructions, and to show first a sketch of what they proposed, the cost to be guaranteed not to exceed 25,000*l.*, and the hall not to be less than 60 ft.

The New Vestry Hall, Hampstead.—At a meeting of the Hampstead Vestry on the 13th inst., Messrs. Kendall & Mew, the architects, certified that Mr. Shepherd, the builder engaged on this work, was entitled to a payment 1,000*l*. The chairman informed the Vestry that Mr. Shepherd had not yet complied with that portion of the contract which required him to give securities for 2,000*l*. for the proper execution of the work, though he had been allowed to commence the works. At the suggestion of the Vestry Clerk, and on the motion of Mr. Pearce, it was resolved that the cheque should be drawn at once, but held back until the previous resolution had been complied with.

Germany and the Paris Exhibition of '78.—The *National Zeitung* publishes a long article by Dr. Lessing, director of the Royal Industrial Museum, who advises Germany not to take part in the Paris Exhibition of 1878. He asks the following remarkable questions:—"Have we not, after all, to do with a malevolent intention? Has France not chosen just the present period to assert anew her supremacy?" People who share these opinions are (according to a Berlin correspondent) daily increasing in number, and it becomes more and more doubtful whether Germany will be officially represented at the Exhibition.

Heating Railway Carriages.—A correspondent, "J. B.," writes to ask "whether some method could not be devised for receiving all the waste steam from the locomotive engine into a pipe constructed for the purpose, and so conducting it through the flooring of all the carriages as it is in the feet that the cold is so severely felt?" We observe in the *London Gazette*, of October 6th, 1876, notice is given that provisional protection has been allowed to Mr. Alfred Mason, of Bradford, for the invention of "improvements in the method of and apparatus for warming railway-carriages with exhaust or waste steam from the engine."

The Midland Station at Bedford has just been completed. In the autumn of last year the directors ordered the down platform to be lengthened, and the whole of the station to be redecorated. The contractors selected were Messrs. T. & H. Skevington, of Derwent-street, Derby, and under the management of Mr. Stratford, of Gloucester, the clerk of the works, the covered portion of the station has been largely increased, and the whole building, including waiting-rooms, rendered more worthy of the increasingly-important town of Bedford.

Proposed Wood Pavement for the Strand. At a meeting of the ratepayers and inhabitants of the Strand on the 12th inst., a resolution declaring the expediency of laying down wood pavement in the Strand was carried unanimously, and a memorial to the vestry of St. Martin-in-the-Fields was signed by every one present, praying that the work should be done, and offering on the part of the signatories to defray the extra cost (over stone cubes) by a self-imposed local rate.

Messrs. Doulton and the Bricklayers.—Too late for insertion in its proper place, we received a letter from Mr. John Phillips, denying the correctness of some of Mr. Solly's statements in our last number. Mr. Phillips says,—"I may observe, in conclusion, that notwithstanding the intimidation practised by the Union and its pickets to prevent, if possible, Messrs. Doulton carrying on their works, we have now some eighteen bricklayers employed on the several buildings, and hope shortly to obtain the full number required."

No Music for Skating Rinks.—More than usual interest attached to the Middlesex Licensing Sessions on the 13th inst., in consequence of its being the first occasion upon which applications had been sent in for music licences for skating-rinks. Every application made was refused, Mr. J. F. Pownall remarking that there was no doubt such places would, in time, become music-halls, which the Court did not desire should be increased in number.

Unitarian Chapel Architecture.—At a Council meeting of the British and Foreign Unitarian Association, held on the 3rd inst., it was resolved:—"That it be an instruction to the Executive Committee to consider and adopt such means as may seem practicable, consistently with a due regard to the various circumstances and needs of different localities, with a view to the improvement of Unitarian ecclesiastical architecture."

Sawdust as Fuel.—For some time past a new steam-engine has been at work at Chatham Dockyard, and has been used for driving the machinery at the saw-mills, and for pumping the water consumed in the yard. Sawdust is used as fuel instead of coal, and it is said that the sawdust generates steam much more readily and with less trouble than coal. The sawdust is forced into the furnace by means of an air-shaft, a continuous supply being kept up.

The Sewage Question at St. Anne-on-the-Sea.—Messrs. Maxwell & Take, architects, being directed by the Land and Building Company of this place to investigate the principles and practice of the pneumatic system of sewerage invented by Captain Liernur, and partially adopted at Dordrecht, Leiden, and Amsterdam, have advised that the system should be tried in the new town of St. Anne's.

The Late Mr. George Smith.—It is stated that the late Mr. G. Smith, the Assyriologist, has left a widow and a large family, who are now plunged in the greatest distress by his untimely death. A fund for their relief has been opened, towards which subscriptions will be thankfully received by Mr. J. W. Bosanquet, 73, Lombard-street, E.C., in the names of Sir Henry Rawlinson and Dr. Birch.

Indian Public Works.—It is said by the *Bombay Gazette* that Sir Andrew Clarke, the head of the Public Works Department, has steadily resisted the cry of certain economists, especially at home, to curtail productive works in India. Many public works may thus be saved this year, but the struggle will be to obtain the requisite sanction next year for public works of all sorts and description.

Proposed Historical Picture.—The *Morning Post* hears that Mr. Val Prinsep is commissioned to proceed to India to paint a great historical picture of the proclamation of the Empire at Delhi. It is said the artist is to receive 5,000*l*. for his work and 1,000*l*. for expenses.

Reduction in the Price of Gas.—At a meeting of the City Commissioners of Sewers, on the 10th inst., a letter was read from the Gas Light and Coke Company, stating that on the 1st of January next, the price of gas supplied to the City would be reduced to 3*s*. 9*d*. per 1,000 cubic feet.

Fox and Knot Mission Hall, Charterhouse-street.—A new mission-hall with the foregoing title has been built and opened in Charterhouse-street. Messrs. Habershon & Pite were the architects, and the work was carried out by Messrs. Matthew Allen & Son.

Knight's Terra-cotta Chimney Terminal. This is arranged to allow any smoke that may be blown down to pass out at the sides. There is nothing new in principle, but it seems an adaptation that may be useful.

Bailey's Turret Clock.—Messrs. Bailey & Co., of Salford, are manufacturing a turret clock which remedies some defects, and deserves notice. Several which have been put up are doing good service.

Clapham Marble Bink.—Mr. Rowley wishes we should add to the account we published of this place of recreation, that the whole of the ironwork, including roofing, &c., was designed, supplied, and erected by him.

TENDERS

For roads and sewers, at Tulse hill. Messrs. Hanmack & Lambert surveyors:—		
Reddin	£4,600	0 0
Botterill	4,314	0 0
Tipping	4,160	10 0
Woodham, Bros.	4,100	0 0
Keeble	3,987	0 0
Stevenson	3,828	0 0
Jackson, E.	3,777	0 0
Jackson	3,720	0 0
Thompson & Son	3,447	0 0
Hutchinson & Co.	3,200	0 0
Wilson	2,998	0 0
Love	2,700	0 0
Mayo	2,700	0 0
Garrett	2,590	0 0

For Board-room, Kensington, for the Kensington Board of Guardians:—

	Board-room.	Strong-room.
Brass	£1,635	0
Newman & Mann	1,506	0
Mackey	1,477	0
Browne & Robinson	1,463	0
Colls	1,429	0
Mills	1,415	0
Sewell	1,406	0
Bayes, Bros.	1,372	0
Aitchison & Walker	1,355	0
Hook	1,319	15
Smale	1,353	0

For the Royal Opera-house, Leicester, exclusive of decorations, upholstery, seating, and special gaswork. Mr. C. J. Phipps, architect:—

Osborne, Bros.	£12,771	0 0
Bracher	12,400	0 0
Lindley	11,382	0 0
Allen	11,373	0 0
Bass & Hodgkin	11,352	0 0
Bass & Sons	10,830	0 0
Kellett	10,825	0 0

* Accepted, and afterwards divided into separate contracts for each branch of trade.

For the erection of house for Mr. Wm. Ashley, Greetwell-road, Lincoln. Messrs. Goddard & Son, architects. Quantities supplied:—

Barnes & Wright	22,730	0 0
Martin & Sims	2,639	0 0
Otter & Elsey (accepted)	2,380	0 0

For the erection of stables at New Ferry, Cheshire, for the Wirral Tramway Company. Mr. Charles H. Beloe, architect. Quantities supplied:—

Jones & Sons	£3,100	0 0
Urmon	2,965	0 0
Williams	2,900	0 0
Tomkinson & Sons	2,790	0 0
Hope	2,606	0 0
Forde	2,547	0 0
Fisher (accepted)	2,459	0 0
Aspinall	1,825	4 0

For alterations at Nos. 24 & 25, Paternoster-row, for Messrs. Wm. Hawtin & Son. Mr. Horace T. Bonnor, architect. Quantities not supplied:—

		Deductions.
Austin	£244	£242
Kirk	799	136
Linzell (accepted)	630	112

For the restoration of the parish church of St. Lawrence, Pembrokeshire. Mr. E. H. Lingen-Barker, architect:—

James & Thomas	£410	0 0
Jenkins & Jones	378	0 0
Lewis & Phillips	370	0 0
T. & J. Lloyd (accepted)	349	0 0

For the erection of new stable, boundary-wall, and entrance-gates, Folkestone, for Mr. Bridges. Mr. Burgess J. Reeve, architect:—

Robinson	£128	0 0
Brooks & Slade	127	5 0
Holdom	115	0 0
Dunk	108	10 0
Butler	102	0 0

For boundary-walls, entrance-gates, iron palisading, and sundry alterations at the Folkestone Gas and Coke Company's works. Mr. Burgess J. Reeve, architect:—

Butler	£458	0 0
Webster	350	0 0
Brooks & Slade	296	0 0
Dunk (accepted)	263	0 0

For alterations and additions to the Fire Brigade Station, Bow, for the Metropolitan Board of Works. Mr. G. Vulliamy, architect:—

Greenwood	£3,278	0 0
Ennor	3,172	0 0
Morter	3,142	0 0
Sims	3,082	0 0
F. & F. J. Wood (accepted)	2,983	0 0

For the sewerage of Harrow-road, Kensal New Town, for the Vestry of Chelsea. Mr. G. H. Stayton, engineer:—

Williams, Son, & Wallington	£1,395	0 0
Nowell & Robson	1,370	0 0
Rillingback	1,350	0 0
Neave & Son	1,339	0 0
Mears (accepted)	1,066	0 0

For alterations to the Wellington Hotel, Sheerness, for Mr. Brisley:—

Sommerville & Smith (accepted)	£290	13 0
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The Builder.

Vol. XXXIV. No. 1790.

SATURDAY, OCTOBER 28, 1876.

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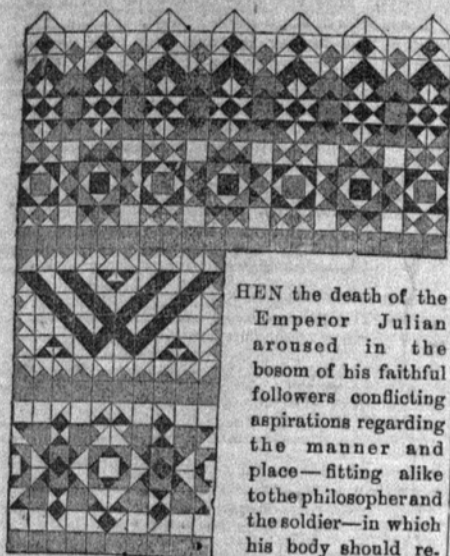
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The State of the English Stage.



WHEN the death of the Emperor Julian aroused in the bosom of his faithful followers conflicting aspirations regarding the manner and place—fitting alike to the philosopher and the soldier—in which his body should repose, ancient come-

dians caricatured upon the stage, and with the applause of a Christian audience, the faults and follies of a dead master, who had ever manifested contempt and aversion for the Theatre of his time. To use the language of Gibbon, "it was an ancient custom, in the funerals as well as in the triumphs of the Romans, that the voice of praise should be corrected by that of satire and ridicule; and that, in the midst of the splendid pageants, which displayed the glory of the living or of the dead, their imperfections should not be concealed from the eyes of the world." The recent triumph of British Comedy—the feast and flow of mutual compliment and reflected wit—affords, though not precisely in the manner of antiquity, an occasion, not for satire or ridicule, but for plain sober fact; and the last may suffice to counteract, in thoughtful minds, the baneful influence which sometimes springs from illiterate praise and mistaken exultation. Never were there more English actors than at the present time; never, in England, were there more theatres than at this hour; yet to count upon the fingers of one hand those in which a refined woman or a cultivated man can obtain intellectual recreation, without the reproach of either their taste or their conscience, leaves the majority unappropriated.

It is Mr. Gladstone's maxim of business,—and, mind, we are not attempting to depreciate it, for, with just a little care and superior encouragement and direction, it might be made a blessing instead of an evil,—"that, as a rule, the State, or individual, or company, thrives the best which dives deepest down into the mass of the community, and adapts its arrangements to the wants of the greatest number." The British Theatre does this: it therefore thrives and is feasted. The masses are pleased with the efforts of our Tragic and Comic Muse; and if there be a residuum, it is one of intellect; for it would seem that only men of wit and humour, and there are always very few of them, decline to

believe that the national genius, as represented by its Drama, lies in gorgeous burlesque and licentious caricature.

Knowing as we do that in the arts it is generally the writer—the novelist or the independent critic—who gives the tone and sets the fashion, we are fain to inquire how and from what source has sprung the present debasement of the Stage? It would be incorrect to talk of the decline of Comedy in England; for, at the present hour, there is none. British Comedy, if we refer to Macaulay, was undermined by Congreve, and its ruin was precipitated by Sheridan. "Both," wrote he, in his Essay on Machiavelli, "were men of splendid wit and polished taste. Unhappily they made all their characters in their own likeness. . . . It was not surely from want of wit that Shakespeare adopted so different a manner. . . . He knew that such indiscriminate prodigality was, to use his own admirable language, 'from the purpose of playing, whose end, both at the first and now, was, and is, to hold, as it were, the mirror up to nature.'" Voltaire said of Congreve's plays that they portrayed "les actions de fripon" in the language of gentlemen. Fielding, in a delightful paragraph, speaks of those who were called "men of wit and pleasure about town," some of whom were "able to celebrate the beauty they admired, and all to judge of the merit of such compositions." But he questioned whether the same appellation could in justice be applied to the men of his own times; and, we take it, with even less justice to those of our own who pretend to a similar distinction. He would have had them called "men of wisdom and *vertu*"; and if the same title were applied now it would be difficult, as far as the English Stage goes, to affirm, that, in wisdom, men soared higher than to adopt the wit of Joe Miller, or, in *vertu*, felt compunction other than for the tolerably correct archæology of properties. Nor are we disposed to believe that the vulgar appreciation of the national uses of the Theatre was any better or loftier, when there were fewer actors and more exclusive audiences, than it is at present. Five years ago, an esteemed correspondent, who signed himself "Vetus," wrote in our pages a description of the management at Covent-garden, at the end of the last and the beginning of the present century. At that time, when barristers, literary men, and members of Parliament, occupied the first five rows of the pit (the stalls of to-day), "Othello" was played to houses containing 30*l.* worth of tickets, while "Bluebeard" filled the Treasury; and, in 1807 or thereabouts, "the elephants were an immense success." After nearly sixty years of culture we are still enabled to perceive the value of such theatrical accessories as super-numerary quadrupeds, and their superiority, in a speculative point of view, to men or women. But it should be remembered how, a generation earlier,

"The tragic queen, to please a tasteless crowd,
Had learn'd to bellow, rant, and roar so loud,
That frighten'd nature, her best friend before,
The blustering beldame's company forswore."

To correct or perhaps chastise that "tasteless crowd," Sheridan wrote the first and greatest English burlesque—a work, by the way, which is unhappily known to the living public by the grotesque interpretation of living players. The British public thus obtained a taste of the tree of knowledge of good and evil in things dramatic; and, in devouring the apple presented to it, has preserved, for nearly the space of a century, a preference for evil rather than good, in its appreciation of theatrical entertainment.

In this downward course it has been unintentionally strengthened by the novels of a great Englishman. At the close of the former half of this century two writers, of acute and extended observation, brought themselves into notice. Thackeray pleased the few, Dickens the many; and with the latter lay the taste of the masses, as it always must do with writers who appeal to them in their own idioms. The first edition of "Pickwick," ill-spelt, ungrammatical, proposterous in plot—the violent outburst of commanding and uncontrollable genius—seized the public mind. Men who delighted in the repeated perusal of Cicero, Bacon, and Swift, of Gibbon and Macaulay, joined in the freshness of the general laugh. Later on, the absurdities of fictitious characters, themselves a caricature, were caricatured upon the Stage; and Robson there culled the laurel of Dickens. Extravaganza; opera-bouffe, vulgarised to suit English ear and eye; burlesque, of every kind, except that of the ancients, of Sheridan, of one living English author, or of the modern French; ridiculed the actions of gentlemen in the language of Bill Sykes, uttered with the twang of Sam Weller. The generation, which, in its youth, was moved with the bathos of "Vikings and his Dinah," has lately sought in "Tommy, make room for your uncle" the distraction of its prime. Human nature is not strong enough to resist the licensed blandishments of inherited vulgarity. Many ladies, it must be admitted, did not participate in the excitement which the early works of Dickens caused to men and boys. Nor was Thackeray, as a rule, more fortunate with ladies. Allegory and satire never charm readers below a certain development of intellect, or a certain grade in society. If the "Pilgrim's Progress" and "Gulliver's Travels" have sometimes penetrated to inferior strata of population, it is probably because they have been taken for *bonâ fide* scenes of adventure. At the same time, men of intellect,—citizens of worth and education,—revelled, and still revel, in Thackeray's burlesque compositions, for, in his broadest caricatures he never even approached the confines of vulgarity; nor did Dickens ever aspire to describe a gentleman, in the worldly acceptance of the term. The satiric touch of the one showed that, even in scholarly work like that of the late Lord Lytton, it was wanted to correct the Comedy of his time; the genius of the other has induced, and its shade still hovers over, the unmannerly dialogue of our own illiterate farce.

"The Press," said a speaker, not very long ago, while we were discussing the actual power of the

fourth estate, "can damn a new play but nothing higher." We are disposed to believe that the Press cannot even do that, unless it strikes, in the public understanding, a sympathetic chord. All that writers can do is to point out conscientiously, and to the best of their ability, the blots and abuses which, unperceived, or condoned, by the average observer, are injurious to public morals and deprave the public taste. "By no laws which you can enact," said, recently, a well-known lawyer, "by no institutions which you can make, can you turn the savage into a civilised being." Now, one of the chief civilisers of the people, if properly directed, is the Stage; for, as Macaulay has said, "the real object of the Drama is the exhibition of human character;" and, as he continues, "to this fundamental law every other regulation is subordinate." It is, therefore, of the utmost importance that those who can, for a few pence or a few shillings, obtain amusing occupation during a whole evening,—and they form the mass of the community at large,—should not be nightly betrayed into dangerous admiration by a species of entertainment which the Parisian communist would openly reject with scorn, or avoid with silent contempt.

We have but to turn to a single London theatre to find out the character of representation which distinguishes all; and, though we are still desirous of excluding the admirable little Prince of Wales's from the scope of hostile criticism, it is impossible to forget that the comedy which is now being played there is a *réchauffé* of foreign wit, translated from a celebrated French one, and made "proper" for native sentiment. The theatre the best situated, within sight almost of the best clubs, and within half a mile of the best residential neighbourhoods, is the St. James's. It has lately opened with a new piece, in which two of the most accomplished English actors to be found anywhere play,—no,—join in the general buffoonery. "Three Millions of Money" is a *panaché*—we use French words because we are writing about the English Stage,—of incidents in French farces, some of which have been played by a French company in London. In this, as in "The Great Divorce Case," and other similar pieces, the female characters generally have been made honest women of. The suspected wooden leg of one heroine has been converted,—*les Anglais sont si susceptibles*!—into a glass eye. The gentlemen, in haste to be convinced, no longer strike their opera-bats against the lady's hip, but they look curiously into her eyes. An American is made to behave in much the same way as an Englishman used to be made to behave on the French stage. Ladies and gentlemen catch one another round the waist, as people did at the fair,—so it is said,—when Greenwich was itself. Nevertheless, *on rit! on a beaucoup ri!! nous avons ri!!!*

At another theatre, Mr. Byron's best piece has been running for nearly 600 nights. It is always received—and deservedly so—with roars of laughter. But the able son of "Old Farren" must surely know that the baronet he is personating is frequently made to talk like a snob—to utter words and use impatient gestures, with which gentlemen, even those who mix in what is called "county" society, are unfamiliar; and both his daughter and his niece treat him with smart sentences of menace and reproach, such as young ladies who are taught to honour their parents seldom, if ever, use. With the butlerman and the "servant-gal" Mr. Byron can deal honestly, and not a word can be said against his creations of that calibre. But his attempts to endow with speech society of a higher grade are as ludicrous to the ears of the original models as were the attempts, thirty years ago, of the tragic "super" to

"Ape the sworn dialogue of kings and queens."*

Not, let us say, because Mr. Byron knows no better, but because he knows his audience.

The remedy for this state of things lies in no radical alteration or reform. It is a mere question of money and management. We do not want better actors and actresses; but we do want a higher class of writers to interest themselves in the English Stage; and we want a few houses so managed as to attract a less indulgent, a more fastidious audience, than that which throngs the ordinary London theatre. When the great Comedians of France paid their visit to the English capital, an attempt was made to direct public attention to the necessity of founding a National Theatre,—in reality, not in name,

—which should be the school of young actors and the home of old ones. The conductor of this journal then renewed a cry, which was taken up by men no less influential than Mr. Planché and Mr. Tom Taylor. If our readers will refer to our issue of July 15th, 1871, they will find an article entitled "A National Theatre and How to get it," written by Mr. George Godwin. Therein he said, and his words apply equally to the present time:—"The feeling is evidently widely spread, widely spreading, that our Theatre is not what it should be; that it might be rendered more worthy, and that the attempt should be made. Burlesque and opera-bouffe, when well done, are very amusing; but their universal reign is not desirable. Hundreds, thousands of persons, fond of the Drama keep away from theatres because they find no opportunity to see such plays represented as meet their taste and wants; no opportunity to see the noble dramatic works which belong to the country properly set forth. At any rate, they cry,—let us have one theatre where the classic glories of our Stage may be enjoyed; where a new poetical play or a high prose, thoughtful work may be fittingly presented; where actors of ability may be fostered and developed; and where our children may hear their own noble language properly spoken, and be aided in their appreciation of what is refined and elevating. And why not? The difficulties may be considerable, but surely they are not unconquerable. The manager of to-day says:—'I cannot help you. Shakspeare, Massinger, Beaumont and Fletcher, Ben Jonson, Otway, Webster, Congreve, Farquhar, Rowe, Vanbrugh, Goldsmith, Sheridan, Colman, Knowles, mean ruin!' . . . Still the experiment ought to be tried fairly and loyally. Go further, and find it proved that the public will not fully maintain financially such a theatre; and still I would say that such a theatre should be established and supported. Well now comes the question,—How can the experiment best be tried? The mode that suggested itself to me was, broadly speaking, that which has given us Great Exhibitions, and, more recently, Society of Arts' Concerts in the Albert Hall,—a list of guarantors: a hundred gentlemen, say, giving their names for 100*l.* apiece; a small committee of the guarantors to supervise; and a proper and reasonable manager. An existing theatre to be taken; large pit, and moderate prices. No long runs; no short hirings of actors; a dramatic school attached; the advancement of the Drama: the healthful amusement and delight of the public to be considered the paramount object of the undertaking. I can imagine, under such circumstances, Mrs. Charles Kean leaving her retirement (this was written in 1871), and Mrs. Theodore Martin occasionally reading, in the Drama's cause, to promising aspirants of their sex; succeeded on other occasions by Mrs. Stirling, Mrs. Wigan, or Mrs. Keeley. . . . Having no personal motive, I need have no hesitation in urging those who love the English Drama to consider how they may best aid this movement. . . . We want a National Theatre not wholly controlled by the predominant taste of the public, and it seems to me there are no difficulties in the way that may not be easily overcome by those who will make up their mind to succeed."

The result of this appeal, and of the writings of others, was the formation of a committee to discuss the feasibility of a scheme which had been drafted for the institution of a National Theatre; but though all the members of it were in earnest, the movement shared the fate of other good things promoted with the best intentions. A principal actor, having put the MS. of the play in his pocket, forgot all about it; and thus the rest were left in even a worse condition than that traditional company which played "Hamlet" without the assistance of a Prince of Denmark.

Nevertheless, in reference to this same movement, at the well-remembered breakfast given to the "Comédie Française," Mr. Alfred Wigan had said, and in the French language:—"Great as is my admiration for the talents of our guests, it is mixed with a feeling of envy. I envy them the possession of that noble theatre, where they can devote themselves to the representation of the works of their best authors with that conscientious patience and talent, the brilliant results of which we so much admire; a theatre independent of all pecuniary speculation; and which can thus guide the public taste in the way of all that is pure and exalted in the Dramatic Art. Under our system of government, art cannot count on the aid of the State. I have, neverthe-

less, some hope that the visit of my colleagues of the Comédie Française will give vigour to a movement which is being made in vindication of the utility and necessity of such an aid. There is no doubt that some of the immense private fortunes in England are in the hands of persons who would be delighted to see a National Drama solidly established amongst us. If they would direct their attention to the principles of the constitution of the Théâtre Française, they would be able, perhaps, to raise a sufficient fund for the establishment of an analogous institution in the country of Shakspeare. If," continued Mr. Wigan, addressing the French Comedians, "such should be the effect of this visit, we should owe you a large debt of gratitude." And how potent is the influence of the Théâtre Française upon Paris, can only be thoroughly appreciated by those who know both. The Parisian public possesses the hereditary gift of "*esprit*," but unfortunately it is ignorant, from sheer want of practice, of any artificial means to control or guide it. It is the people, not the journalists, of Paris who damn a foolish play; and the chief fault of the former is that they often permit political and religious prejudices to warp their natural judgment. A bon-mot, a witty epigram, a scathing speech, has sufficed to raise a barricade. The Court of Louis XVI., and, above all, Marie Antoinette, innocently encouraged the performance of the "*Mariaze de Figaro*"; and, in the private theatre at Versailles, smiled on Beaumarchais, whose caustic barber was sowing the seeds of revolution. But the British public has too much sense, or too little wit, or it has not the opportunity, to brood, even in a fool's paradise, over its own elevation and improvement. That, however, it carries away with it remembrance of what it has witnessed and heard is certain, for, too often, the joke of the day has originated in the rhyme of the last burlesque or the antics of the newest buffoon. Bloomsbury, with a grin, tells you that "still he is not happy"; the city clerk will "strike you with a feather"; and Drury Lane, having blackened his wife's eyes, poses with the just reflection,—"*That's the sort of man I am.*"

A great change was made in "the bills" by the movement to which we have referred, as we may point out more particularly hereafter; but it was spasmodic and without principle. We want to be certain, at any rate, of one stage.

Montesquieu has divided mankind into two species: *ceux qui pensent et ceux qui amusent*. For neither is the ordinary London theatre intended—for neither is it fitted. What we want is a model—an example to the rest. We want, in the earnest language of Mr. Planché,—"*The assured existence of a theatre, in which the masterpieces of our unrivalled dramatic authors shall be constantly and worthily represented, where—*

"Thoughts that breathe and words that burn"

shall be uttered by actors, who can feel and express them to an audience, 'fit,' however 'few,' without the fear that their salaries will not be forthcoming on the following Saturday; and that the manager, disheartened by the appearance of empty benches, will change 'the bill,' discharge a company he has *jobbed* at a week's notice, and endeavour to out rival his competitors by pandering to the predominant taste of the public." One more quotation, descriptive of the English Stage a century ago, will suffice for our present purpose. "The actor and his work," in the words of Mr. Tom Taylor, "had then their place in the world of art. Productions of new pieces were events in that world. Great critics were not above sitting in judgment on plays and players. Great painters were proud to paint, great statesmen to know, them. The House of Commons paused once in debate to pay a formal compliment, by the eloquent lips of Burke, to Garrick, accidentally present in the Speaker's Gallery. We have only to read the critiques of the German Lichtenburg (written about 1775) on Garrick, Weston, Smith, and other actors of that time, to feel how immeasurably more intellectual an art acting then was; and in how incalculably more respectful and thoughtful a spirit it was viewed and judged then, than seems even conceivable nowadays."

The present constructive state of the majority of our London theatres also calls for immediate reform. Their imperfect, often even entire absence of, ventilation; their rude entrances; their dangerous staircases; their barbarous seats and other fittings; their noxious refreshment-bars; and, above all things, the risk of

health and life, which every playgoer braves in visiting them, have long formed the subject of our serious consideration; and, at no distant date, we may publish the result of our inquiries and experience.

PRIMITIVE ARCHITECTURE AND ITS POWER OF GROWTH.

It would be difficult to imagine, in these days of all but a universality of knowledge and art practice, a stranger phase of things than that now actually in existence in the heart of that still mysterious continent, Africa. We seem to know pretty much all that can be known as to the art and architecture of most of the rest of the world, not, it is true, of the origin of the various styles of art or architecture anywhere, but we have before us pretty fair and complete records of what has been done, and whole catalogues of most of all that remains of it. Of the origin, and first incipient beginnings of the Greek, for example, we know simply nothing, though we have before us, in books, and examples, and fragments, enough to show what the Greek architecture really was. Very much remains, it is true, to be done, and many difficult problems await solution, but with the given elements we may see the antique Greek at his glorious work, as an artist, as an architect, and as a workman. And so it is with Imperial Rome, and even with Assyria, and yet more out-of-the-way, and out-of-the-time, places. In Europe, Asia, and America, this may fairly be said to more or less apply.

But when we cross the narrow belt of sea which divides Europe from Africa, and travel to the interior of that vast continent, we come upon a totally new phase of things, and actually do look upon a "primeval" art and architecture, and that in a present, practical, and untaught way, which can really be found nowhere else, nor, indeed, is there any approximation to be found to it. The subject is certainly new, and may well interest a reader here and there.

In the first place, we owe not a little to those energetic and persevering and illustrious men who have accomplished the difficult pioneering work. Through trackless sand wastes, with the sun vertically overhead, through swamps and marshes, through forests so dense that but one can penetrate through the closely-set trees at a time, and across and up and down broad and rapid and all but endless rivers—these enthusiastic men have fought their way. Their names are many, and some of them have paid with their lives the price of their curiosity, for both man and beast fought against them. None of them, unfortunately,—so that that work has yet to be done,—went with any express purpose of discovering artistic or architectural curiosities and mysteries, and it is only here and there, therefore, by accident more than otherwise, that we come across a "note" throwing light on such matters. And even when so much is done, the notice is so slight, and details so few, that but a dim glance can be obtained. But a little is better than nothing, and putting one thing with another, we are able every now and then to come at a fair idea of what is done in places wherein every man must needs shift for himself, and wherein foreign trade, and information, and help can hardly be said to have existence. We can but hint at one or two matters out of so many, but they are very curious ones, and well worth the looking at.

House-building and town-building in the interior of Africa are not a little ingenious and unique. All that is done would seem to follow from the absolute necessities of the country and climate, and from the character of the materials provided by Nature herself on the spot. The ingenuity of the builders is certainly their own. The mere plan of an African house, within the clay walls of a town, is sufficiently ingenious, and would be an impossibility here, as would an ordinary house, as here constructed, be there. Dr. Barth, whose African labours have been second to none, lived for many months in the town of Timbuctoo, close to the mysterious Niger, in a house thoroughly characteristic of the place. It consisted of a lower story, with courtyard, and an upper story; and the roof, which was flat, was used as a terrace, without which these dwellings would be all but uninhabitable. Unfortunately, one has to guess a good deal at dimensions. No detailed sections are sketched, so that much is obscure, but yet the general idea of African house-building is pretty clearly seen. First there is an "ante-room" or entrance passage. These passages are commonly narrow,

but long, and contain no furniture but a clay seat on either side of the entrance doorway. Beyond this is a second ante-room, of irregular shape, with a staircase leading to the terrace at the top of the house. Beyond this is the first inner courtyard, and beyond this again a room in which is almost always that curious contrivance,—an African "bedstead." Other covered passages and small rooms are in the rear of this, and surround a second courtyard of the same size as the first. There are no windows to these rooms, the light and air coming in through the doorways; and there would seem to be an advantage in this absence of windows in so heated an atmosphere: the inner rooms, though dark, being thus closed, are cool. It is only at times, consequently, in the heat, that the terrace at the top of the house, and which is, of course, uncovered, is available. The walls of these houses are of pressed clay, as are the inner partitions as well, though these are at times of wood, and even of "matting." The floors are of pressed clay, and so, indeed, is the better part of the house furniture,—such as it is,—the seats, or settles, and benches being of clay. In the well-to-do houses, matting, rugs, and furs, cover these clay constructions. The walls occasionally are hung with fine matting, so that an African house is, after all, well adapted for Africa, and the heat of its climate is thus rendered endurable by this special mode of construction and planning. The doorways to these tropical apartments are commonly narrow and low, and closed when necessary by a matting or leather curtain,—a contrivance, by the way, which would seem to be of much older date than the hinged door. Fireplaces, as here understood, of course there are none,—an occasional hole in the ground serving all the purposes of one. These houses are, indeed, to the last degree interesting, and throw light on the obscure ways of the old world, for antiquity—to use a wide and generalising term—could never boast of such house-building as is seen now-a-days in modern towns and cities; but it must have been pretty much of the type indicated. The long-buried Italian cities show this, while Africa, to this hour, shows the work in actual progress. It is to be observed that in the towns the houses are but here and there isolated, they standing side by side as elsewhere. The streets are very narrow and unpaved. There are no windows with outlook into the street,—nothing but the low doorways to give any idea of the clay-built buildings right and left being human habitations at all. It is to be noticed, too, that the only difference in the planning and construction of the houses of the richer class and the "poor" here consists in their size, the smaller ones being of but one story, with its terrace-roof, and in its having but one courtyard. All else would seem to be alike. Outside the town, and forming a sort of village, are many groups of straw-matting-built huts, each hut being separate. The mosques are the only public buildings, and need separate notice, both from the fact of their being buildings *per se*, and from the very striking uses which they subserve, all surrounded as they are with an all but boundless desert of sand and silence. The great mosque in Timbuctoo, indeed, stands on the very edge of the desert, on the outskirts of the town, and is a very striking object architecturally.

We have taken these exemplars of Old World house-building in the present from this special place, from the greater fullness of detail which we have been able to get of it. It is, however, but simply typical of the house-building and architecture of a vast extent of country, and takes us back to a remote time. It does not stand quite so still as many might suppose, and needs but to be caught sight of by those who can use it and develop it.

And it is this, indeed, which makes this African house-building, so remote as it is, so especially interesting; first, that it evidences what man does when uninstructed, and when in such a position that he cannot borrow; and, then again, it leads us further yet, for here it is that we may get a glimpse into the very origin and first beginnings of that great, and even to this hour unequalled, Egyptian architecture. No one can suppose that the colossal temples and gateways of old Egypt sprang into existence all at once, and as if by some sudden inspiration. They, without doubt, grew out of earlier and much simpler and rougher forms, and out of forms built up of humbler materials than limestone and all but impenetrable granite. Here we may really see, though dimly, how it was done. Some theorists have been puzzled at the generally sloping lines of Egyptian walling, and have noted

how much was made of it, and how dignified the result, simple as the idea is. Here in the heart of Africa we find the origin of it in the bare necessities of construction, and in the nature of the material used. The gateway to the official residence of the chief, near to the house already noticed, struck Dr. Barth as especially "stately," with attempts, as he puts it, at "architectural decoration." This gateway, like to an Egyptian pylon before a temple portico, was of nothing but compressed clay, with the wall faces inclined for the sake of strength, and with, at intervals, wooden beams and cross-pieces, to afford additional strength. It has the simple square-headed doorway in the centre, with low walling on either side of it. Constructional necessity did the work, and its builder and contriver never, in all probability, thought for a moment of "architecture!" But,—and this is the noteworthy point,—the succeeding stone and granite builders who copied him, and who caught the idea without doubt from the clay building, did so, and the colossal gateways and "pylons" were the result of it. Indeed, this is as curious and instructive an example of architectural growth as could well be adduced, and shows how much can be made out of a simple "constructional" idea. We feel all but sure that the architecture of Egypt,—of the mighty Karnak itself,—might be built, in the mind's eye, out of the clay of Timbuctoo. We cannot but regret, again and again, that some of these African wanderers did not look at the strange places they saw with architectural interest, and so bring us back "details" and dimensions. It is only incidentally, as we have said, that they have done so,—more's the pity of it.

We have but glanced for a brief moment at this fruitful subject, on which so very much that is quite new might be said, and which is capable of throwing so much fresh, not to say strange, light on this difficult and obscure subject,—the origin of architectural style. It would be startling, indeed, if, amidst all the difficulties of the matter artistically looked at, out of old Egypt, so full of mysteries and puzzles on all hands, a clue should be found to the origin of an architectural "Style," or that we should be able to build up an architecture out of the mere necessities of materials and construction, and to be in a measure forced thereto by the very climate of the spot on which the architecture is built up. Nay, might we not even go further than this, and affirm that the simple dignity to be found at a glance in the inclined clay walling first roused into activity that feeling of the sublime which would seem to have ruled in the designing of Egyptian structures?

NEW MUNICIPAL BUILDINGS.

Dunfermline.—On the 12th inst. the memorial stone of the new corporation buildings, Dunfermline, was laid with Masonic honours by Mr. Whyte-Melville, Provincial Grand Master, in presence of the Provost and members of the council, and a large company of people. The buildings have been erected from designs prepared by Mr. James C. Walker, architect, Edinburgh. The Bridge-street and Kirkgate fronts are built of fine dabbled coursers, the mouldings being polished, and the stones are from Polmaise Quarry, near Bannockburn. There are four floors to the back of the buildings, three at the bottom of Kirkgate, and two floors facing Bridge-street. On the ground-floor, looking into the Glen of Pittencrieff, there are the housekeeper's apartments, lamplighters' room, six public w.c.s., urinal, &c. On the basement floor there is an office for the superintendent of police, a house for the police sergeant, a room for the policemen, and five police cells. There are also heating-rooms, coal-cellars, &c., on this basement. On the same floor, towards Bridge-street, there are three rooms for clerks employed in the bank above. On the street floor there are offices for the town clerk, master of works, and collector of public rates. On this floor there are apartments for a bank, consisting of sitting-room, manager's room, and a very spacious entrance-hall. Above all this is the council-chamber and committee-room, police court-room, &c. The building is in the Old Baronial style, having a square tower at the north-east corner, with four turrets corbelled out from the angles. The main entrance-door is in the tower facing High-street. The bank entrance will be from Bridge-street. The council-room is 39 ft. 3 in. by 25 ft. 3 in.; the police-court, 50 ft. 6 in. by 31 ft. 6 in. The steeple will in all be about

118 ft. in height. Messrs. Hutchinson are the masons; H. & J. Philip, joiners; M. Williamson, planter; J. Beveridge, slater; and the construction of the whole building is being superintended by Mr. John M'Laren, clerk of works.

Kidderminster.—At a meeting of the Kidderminster Town Council on the 11th inst. reference was made to the communication between the music-hall and the new municipal buildings, situated contiguous to each other, and the opening of which is fixed for the 31st inst. The buildings are situated at the bottom of Vicar-street, close to the new Midland Bank and the new offices of John Brinton & Co., and the whole are from the designs of Mr. Meredith, architect, with the exception of the music-hall, built in 1856, from designs by Messrs. Bidlake & Lovett, of Wolverhampton. The whole of the fittings in the police-court and council-chamber are of pitch-pine and oak, and have been carried out by Mr. Edwin Stringer, of Kidderminster. The buildings will cost over 8,500*l.*, and the contractor is Mr. Binnian, of Kidderminster.

THE DWELLINGS OF THE POOR.

OXFORD DIOCESAN CONFERENCE.

At the sitting of this Conference on the 10th inst., the Rev. Canon Ellison moved:—

"That the defective house accommodation, and other sanitary conditions, of the agricultural labourers in many of our villages are detrimental to the physical health of the people, to their moral and religious interests, and to their social progress; that from the report of 'The Commissioners on the Employment of Women and Children in Agriculture' (1867-9), as well as the more recent Reports of Sanitary Officers, it would appear that in order to remedy this evil additional legislative powers are needed; and that with a view to the obtaining of such powers, using those which already exist, and enlisting a wider circle of public opinion on the side of improvement, a Committee of this Conference be appointed to deliberate, and take such action as shall seem to them most expedient."

He was for twenty years a director of the Prince Consort's Windsor Society for improving the dwellings of the working classes; and during that time could not fail to see the manifold blessings which followed in the wake of improved homes. When he came to Hasleley in January last, he was at once brought face to face with a directly opposite experience. The state of affairs he there discovered convinced him that if he were to do any good among the people he must begin with their homes. He was fortunate enough to fall in with the reports of Dr. Child (Medical Officer of Health for Oxfordshire), which led him to the perusal of the reports of the Commissioners on the Employment of Children, Young Persons, and Women in Agriculture. From these reports he read sundry extracts. Mr. Culley, the Commissioner for Berks, Bucks, and Oxon, spoke of "the insufficient amount of cottage accommodation in proportion to the wants of the land for the purpose of cultivation," and described the state of labourers' dwellings as being such as to "justify men in speaking of it as a national disgrace." Dr. Child said, "I have found the following defects to exist, some of them, of course, in combination. Houses are built in improper situations, improperly constructed, filthy, dilapidated, overcrowded." He added, "such cottages, though in number a minority, are still a considerable minority, as some are to be found in almost every village, and some villages contain great numbers of them." He alluded also to the water supply as continually polluted with sewage, and thus becoming the fruitful source of typhoid fever. He asked them to consider what it must be to the labourer to return to a home cheerless in itself and absolutely dangerous in its surroundings; to see wife or child sickening and dying; to know that with better house and better water not one of those things need have been; and to have the hopeless conviction that, bound to the soil by the necessities of his lot, he must remain where he is, impotent through want of knowledge to devise a remedy, or through want of means to carry it out. What was to be done, or rather remained to be done, to remedy the evil? Mr. Culley said they were calling upon the landowners of to-day to remedy the evil growth of many past generations, and nine-tenths of those who resided in the counties he had visited were already busy at the work as far as their means would allow. Dr. Child said, "a great deal is being done, chiefly by individual proprietors, towards remedying the shocking state of things which I have described. There are estates in every union in my district on which proprietors have done, and are doing, all that is possible for the improvement of their labourers' cottages." The powers of interference already given, which

are at present chiefly permissive, would have to be made compulsory. The provisions of the "Artisans' and Labourers' Dwellings Act" of 1875 would have to be extended to rural districts, the local sentiment would have to be educated, and local action drawn out by the more general appointment of parochial sanitary committees, this action being quickened and sustained by the Local Government Board in London. With and amidst all that, a public opinion would have to be formed, which would in a few years make those miserable dwellings to be things of the past. In conclusion, he expressed his readiness to accept the amendment on the paper in the name of Mr. W. W. Wootten, "To strike out the words 'as shall seem to them most expedient,' and to insert the following: 'as, upon the bringing up of the report, the Conference shall deem most expedient.'"

The Rev. B. T. Oavry advocated the passing of a General Building Act for the whole country, to prevent the building of any house except upon certain stated sanitary conditions.

The Rev. W. B. Duggan proposed as an amendment, that the words "of the labourers in many of our towns and villages," should be substituted for the words, "of agricultural labourers in many of our villages," which was seconded by the Rev. N. T. Garry.

Canon Ellison having accepted the proposal, The motion as amended was carried unanimously.

NEW PUBLIC BATHS.

Liverpool.—Mr. Holbrook Gaskell, of Liverpool, has, at an estimated cost of between 3,000*l.* and 4,000*l.*, undertaken to erect public baths for the township of Widnes.

Maidenhead.—The new "Hambletonian" Bath at Maidenhead has been opened. It measures 120 ft. long by 40 ft. wide, and from 3 ft. to 7 ft. deep, and contains 170,000 gallons. Mr. Hamblett is the proprietor. On one side of the bath are several dressing-boxes, and on the other a promenade, surrounded by flowers, trees, and shrubs. Near the same spot Mr. Hamblett is providing a large room to be used as a skating-rink. The whole of the work has been carried out under the direction of Mr. Henry Cooper, architect, of Maidenhead.

Croydon.—A new open-air swimming-bath has been constructed and opened for public use by the Croydon Local Board, in close proximity to the one long in operation. The desirability of greater accommodation has been demonstrated in a forcible manner this season, no fewer than 15,000 bathers having been admitted during July and August, a result far in advance of any previous year. The new bath, which in summer will prove very comfortable, is intended for use as a second-class or second bath, while the older one will be reserved for first-class visitors. The bath just opened was constructed by Mr. Smith, of Norwood. The paving is the workmanship of Minton, of Oxford-street. Thirty-two boxes have been placed for the accommodation of bathers, protected from wet by an overhanging roof; the bath itself being open to sun and rain. The pool, owing to the peculiar shape of the ground, is 76 ft. in length on one side, 56 ft. on the other, and 36 ft. in width.

THE LAST INVESTIGATION OF ROME.

UNDER the title of "Forum Romanum and Via Sacra," that indefatigable explorer, Mr. Parker, gives us another of these neatly-bound volumes* in which the results of his researches in the Eternal City are gradually getting themselves recorded. Those who have made acquaintance with the preceding volumes of the series will be prepared to encounter the idiosyncrasies of literary form, or rather, the sublime disregard of form, which distinguish the works of this persevering and painstaking archaeologist. They will not be surprised to hear that the title-page is at the end of the volume and the preface in the middle,† and will be prepared to find that a process of comparison of various readings, and a very careful weighing and cogitation over the construction of paragraphs, are necessary to discover what is the precise information intended to be conveyed to them. The present volume seems somewhat less labyrinthine than its predecessor, as the grouping of the

* The Archaeology of Rome. By John Henry Parker, C.B., &c. Vol. II: The Forum Romanum and Via Sacra. James Parker & Co., Oxford; John Murray, London, 1876.

† The principal title-page and preface, that is to say; here are, of course, several.

remains described under two heads, the "Forum Romanum" and the "Via Sacra," naturally suggests a division into two sections, to which the author has in the main mercifully adhered, and which makes it easier to give a general idea of the scope of this division of his Roman records than was the case with previous instalments of the work.

In the preface to the "Via Sacra" section, the author gives some account of the causes which led him to spend so much time over Roman archaeology, and of the principles which have guided him in its investigation. A medical verdict, sentencing him to spend his winters in Rome, was the originating condition which led to his thoughts being turned in that direction. He knew that many books had been written on the history of the city of Rome, but that no one had applied the principles of the modern science of archaeology to this subject. He had studied the best works in English, French, Italian, and German (the latter translated for him by friends), to ascertain the "true history of the city of Rome." None of these works satisfied him, "since the writers have in no instance studied architectural history on the principle of comparison with well-dated examples, or made that the basis of their work." Many of the most learned archaeological authorities on the subject adhered to what were called "Roman traditions," which were "only the conjectures of learned men during the last three centuries." It seemed to him that though some were right on one point and some on others, the only safe plan was "to compare the exact words of the classical authors (*without note or comment*) with the existing remains, of the dates the dates are soon seen by comparison with other similar buildings by experienced eyes. This is the principle on which my work has been carried out; to obtain the best information I can get, either from books or from living authorities, and then form my own conclusions from them after consideration."

It is only bare justice to Mr. Parker to say that this is unquestionably the true principle to follow in researches of this kind, and that a man who has, both literally and figuratively, dug for himself to obtain the materials for his work may claim to have his conclusions received with attention, when those conclusions are at variance with other opinions based upon less careful and practical investigation. And in regard to this latter point, Mr. Parker draws attention to the facilities for more accurate knowledge afforded by recent excavations, and makes rather a point as against the "Roman tradition" school by publishing a photograph from a view of the Forum Romanum, taken in commemoration of the Jubilee in 1650, in which some well-known monuments (especially the three columns formerly called part of the Temple of Jupiter Tonans, but which Mr. Parker and others call the Temple of Saturn), now fully excavated, are either three parts buried, or entirely invisible. The thorough investigation of the truth of Mr. Parker's theories, so far as they conflict with existing ideas, could only be carried out by such a minute personal examination of the more newly excavated remains as he has himself made, and in regard to a good many of his ideas it may perhaps be said that they deal with what must always remain matters of controversy. But there can be little question that the system of investigation he has pursued is the best one for arriving at the truth, or the only one, provided the investigation is not biased, either consciously or unconsciously, by preconceived ideas or expectations, or the wish to oppose somebody else's view of the matter by which archaeologists (being after all but mortal) are, we fear, not seldom influenced.

The object of Mr. Parker's work he describes to be to explain in a popular manner "the true history of the city of Rome." He makes no pretension, he assures us, to know more than other people, but has often been told that he possesses the art of explaining antiquities "in a very natural manner, easy to be understood and remembered." We fear Mr. Parker has been the object of a little good-natured flattery in regard to this point. After-dinner speeches at archaeological societies are not always to be taken too literally. Our impression is just the reverse; that on this particular subject he does know more than most people, but that he has no faculty whatever of putting what he knows into logical form. His manner of explanation is "natural" in so far as there is an utter absence of art in it, and we should be inclined

* The italics are the author's.

to reverse the king's request to Polonius, and desire of him "less matter with more art." But in one respect Mr. Parker has done excellent service towards giving a clearer and more vivid idea of Roman remains and their character and antiquity to those whom he has addressed in speech and in print, by calling in the aid of photography in illustration. Those who, not having been to Rome, attended Mr. Parker's three lectures at Conduit-street not long ago (and it was much to be regretted that the audience was so small a one) must have felt, in spite of whatever puzzlement they may have experienced from the torrent of facts discharged upon their heads, that they had gained a new and fresh idea of the reality and meaning of the mural remains of Rome from hearing comments upon them with the actual structure in all its idiosyncrasies of detail brought bodily before their eyes by photography: and the like value and interest is imparted to the present volume by the photographic illustrations which are appended to it. Like all who have compared drawings of architectural remains with the remains themselves, Mr. Parker has found innumerable discrepancies between the drawings and the originals, even where the former were made by very able draughtsmen. Drawings, as he observes, are commonly made in the study from rough sketches taken on the spot, or are even made for engravers by an artist who has not seen the building. "For this reason photographs are indispensable for explaining the history of a building. No artist ever thinks of showing the thickness of the mortar between the joints of the stones, or the thickness of the bricks; yet on these two points the date of a building often hangs, at the most important turning-point in the history of architecture." The reason, of course, is that artists, having generally in view an object quite apart from archaeological study, neglect details which are only of interest from that point of view.

The study of the history and topography of the Forum Romanum seems likely, in *Bottom's* phrase, to "grow to a point" now, after the long course of contradictions and conjectures through which it has passed. In regard to one or two important features of the topography, it has appeared that "third thoughts are best," and the more recent investigations have tended to a return to early theories which had been temporarily abandoned. It has been considered a fixed idea ever since 1500, that one angle of the Forum was near the arch of Severus, and another near the temple of Antoninus and Faustina, giving a line of about 100 paces in length, running nearly north.* But the question was, whether this line represented the length or the width of the Forum. Until the time of Nardini the universal opinion was that this was the long side, and that the width was about half the length,—a proportion apparently defined by the three columns of what is now known to be the Temple of Castor and Pollux, near the angle of the Palatine, and some little distance to westward of the Temple of Antoninus and Faustina. Nardini managed to upset this theory, and for some time was almost unanimously followed by antiquaries in the belief that the line referred to represented one end of the Forum, which would thus have its greatest length east and west. Bunsen returned to the original theory, which, it is scarcely necessary to say, is set at rest now by the excavation of the area, which shows the Forum as an irregular oblong space, nearly one-third wider at the north end, nearest the Capitol, than at the south end, and not extending quite so far southward as the Temple of Antoninus and Faustina, which, since the more complete excavation, can no longer be regarded as in the Forum, being on the other side of the Via Sacra, and a little away from the south-east angle of the Forum, though it is sufficiently near the angle to confirm the general correctness of the theory of the older antiquaries. This temple was buried to half its height, and houses built up against and between its columns, in the Middle Ages; the marks of the roofs of these houses, as Mr. Parker observes, are still visible on the columns. Palladio has the credit of having removed the houses and excavated the columns down to their bases.

The comparatively small area and irregular

* The side bounded by the Via Sacra runs nearly north and south, according to Mr. Parker's compass, though in the plans of Bunsen and Canina the same line is shown as nearly due north-west. They are probably right, and Mr. Parker has perhaps given magnetic north instead of true north; but as the end of the Forum next the Capitol has commonly been written of as the north end, it is convenient to retain this nomenclature.

shape of the Forum are curiously at variance with the ideas we are accustomed to associate with a place so great in history. The Via Sacra, part of which skirts the east side of the Forum, terminating in the Clivus Capitolinus, and up which, as poets and poetic historians are fond of picturing, the triumphal processions of Rome wound their way to the Capitol, was little more than a crooked lane, after all! The architectural grandeur of Rome belongs for the most part to the time when her moral grandeur had deteriorated or nearly vanished. Very little indeed of the buildings whose remains are found round the Forum belongs to the date of the Roman Republic; only odd angles of basement here and there, left amid the masonry of later times, in that extraordinary jumble of remains characteristic of the Eternal City; and great part is of the time of the later Empire, many of the temples having been rebuilt on the old sites and with the old names. The most important conclusions derived, in Mr. Parker's pages, from the recent excavations in the Forum, relate to the three temples at the northern extremity, and their connexion with the Capitolium, which stood in their rear, and which was, in fact, what we should call the "town-hall" in a modern city. The Capitolium included, in its lowest story, and partly cut out of the rock, the Ærarium or treasury; over this the Tabularium or record-office, and over this the Mancipium or public offices. This upper portion of the building was built as it now stands by Michelangelo, who blocked up the Tabularium arcade in order to get a sufficient wall to carry the new superstructure, the older buildings which it replaced having been of timber. The building of Michelangelo, which forms the large rather warehouse-looking mass conspicuous, with its tower, in all views of the Forum looking towards the north, became by degrees the chief visible record of the site of the Capitolium; the lower portion, containing the Tabularium and Ærarium, becoming more and more concealed and banked up by the gradual accumulation of earth and debris. The view of Rome at the time of the Jubilee, engraved by Mr. Parker, and which we before referred to, indicates how the ground had risen close to this site; and an engraving of the place in 1810, before the first of the modern excavations were commenced, gives evidence that it had been filled up still higher at that date. In this engraving we see the architrave and the tops of the columns of the Tabularium just appearing above the level of the made ground; the engraving (which is perhaps incorrect) shows them, however, in a more complete state than is the case at present; Mr. Parker's photograph (plate iii.) shows only two columns left, and the rest a blank wall. However, the removal of the ground at this place, down to the original level, reveals these lower stories of the ancient Capitolium, and also the basements of the three temples which stood between it and the north end of the Forum area. The proper nomenclature and identity of these remains has been, we need not remind the reader, the object of endless discussions, at least in regard to two of them. The eastern one, of which only the basement remains, has long been known to be the Temple of Concord. The remains next to it consist of the podium of another temple, situated directly in front of the Ærarium, and at the south-east angle of which stands that angle group of three columns which has successively borne the names of Jupiter Tonans, of Concord (Becker), of Saturn, and of Vespasian; while Mr. Parker, on grounds we will notice immediately, gives it again to Saturn. It fronts south, towards the Forum, and near it, and fronting eastward, stands, at the north-west angle of the Forum, the temple of which eight columns remain, and which has been successively labelled Concord, Fortune, Vespasian, and Saturn, and is given by Mr. Parker to Vespasian. Now, the main point of his remarks on the results of the excavations here is this, that he finds in them authority for a theory with regard to the Temples of Concord and Saturn, viz., that these were directly connected with the Senate-house and the Ærarium respectively. The connexion of the Temple of Saturn with the Ærarium had been previously urged by Bunsen, before the excavations were made; but with Mr. Parker the idea is first started with regard to the Temple of Concord, and seems to have arisen partly out of the existence of the commencement of a subterranean passage under the podium of the temple (laid bare in the recent excavations), and partly out of Mr.

Parker's conviction that the Temple of Concord, which is constantly spoken of as the meeting-place of the senate, was not large enough for that purpose, and was in fact merely an ante-chamber or portico to the Senate-house. On Mr. Parker's own showing, the assumption appears a most gratuitous one. He admits that he cannot tell where to put the Senate-house in that case, and he quotes a passage from Cicero's second Philippic as supporting his view, which to ordinary readers will certainly appear to be in direct opposition to it. The only argument which really looks like a support to his view is an anecdote about the Emperor Pertinax coming to the Senate-house and finding it closed, and seating himself in the Temple of Concord till the doorkeeper was found; but the original Latin, quoted in a note on page 8, does not by any means seem to necessitate his interpretation. Mr. Parker takes it as proved, however, and goes on to the next temple, which he calls that of Saturn on the strength of the statements of Solinus and Plutarch that the treasury of Saturn was made into a temple, which remained in the time of the latter. "The real meaning of this," he says, "was the same as in the case of the Temple of Concord; there was a doorway in the wall of the Ærarium at the back under the podium of the temple." What Mr. Parker means by "under the podium" we do not quite understand; but he gives a photograph of the excavated podium of the temple as rebuilt by Severus, and part of the wall of the Ærarium (plate viii.) with an arched doorway in it built up, which evidently served formerly to communicate either with the exterior or with a building in front. The Temple of Saturn, of which the three columns remain, he regards as having been a mere portico without a cella, and the Ærarium behind might then, he thinks, naturally be looked on as the cella of the temple. We never heard of such a case before, nor does Mr. Parker give any reason for thinking the temple was only a portico, which seems quite improbable; there is plenty of room for a complete temple between the three columns and the wall of the Ærarium, and Bunsen's plan shows it as such, though his view supports Mr. Parker's in other ways. Within the built-up doorway mentioned, Canina discovered a steep flight of steps, which Mr. Parker says are of course the steep stairs to the Ærarium, which Cicero jocularly refers to in his oration *pro Fonteio*, though in mentioning this point a second time (Mr. Parker is never content with saying anything once) it is only said that Cicero is believed to have meant the steps of the Ærarium. Granting this to be the Temple of Saturn,* it will pretty well follow that the third temple is that of Vespasian; though Mr. Parker puts even this in his own original method of logical statement: "this must be the Temple of Vespasian, because there are no traces of any vaults for a Public Treasury in it." That can only be compared to the argument in the farce,—"Have you no strawberry mark on your arm? Then you are my long-lost brother!"

We hold no brief for either Vespasian or Saturn, and by no means intend to say that there is nothing in the theory which Mr. Parker adopts from Bunsen. On the contrary, the frequent mention in Latin literature of the Temple of Saturn in conjunction with the mention of the Treasury, certainly gives a colour to his conclusion, on a point in regard to which we may be permitted to doubt whether anything decisive can be proved at this distance of time. Bunsen's opinion in favour of this view was, perhaps, as purely conjectural as it has been found to be on other points; he placed the Basilica Julia, for instance, with its longer axis running east and west, while the subsequent excavations have shown it as running north and south. Canina, whose plan gives the Basilica its true position and extent, restores the name of Vespasian to the temple we have been speaking of; and there is the important evidence in his favour of the description by Statius of the equestrian statue of Domitian, which stood in the centre of the Forum, with a Basilica on either hand, and

* As we believe there is an impression that the three columns (*late* Jupiter Tonans) have been accepted as the Temple of Saturn since Bunsen started the idea in 1835, we may remind the reader that the architect Canina, to whom Bunsen's pamphlet was dedicated, declined to accept this view, and in a paper read by the Rev. R. Burgess at the Institute meeting of June 28, 1852, the reasons for considering this to be the Temple of Vespasian were fully placed before the meeting, and generally accepted; and Sir W. Tite, who had just returned from a survey of the then new excavations, expressed his opinion that "all question was at end" on the matter, and the Vespasian theory finally established.

which was looked upon by Vespasian from his temple in the rear. The pedestal of a colossal equestrian statue found in the centre of the Forum, in the precise spot indicated by the poet, and between the sites of the Basilica Emilia and the Basilica Julia, points almost exactly to the centre one of the three temples at the north end, so that, taking this to be the Temple of Vespasian, the whole description would be absolutely correct in relation to the statue; whereas the north-west temple, which Bunsen and Mr. Parker call Vespasian, does not look towards the pedestal at all.* We cannot say that, to our thinking, Mr. Parker's old doorway in the wall of the *Ærarium* (or what is called so) seems conclusive as against this important piece of literary evidence. Mr. Parker has one or two new facts to adduce, resulting from the recent excavations, but his manner of building up arguments is very curious. He adopts a far-fetched theory, very doubtfully supported, that the Temple of Concord stood to the Senate in the relation of a mere portico, and then uses this suggestion as a ground for arguing that the same idea was carried out in the connexion of the Temple of Saturn with the Treasury. To assume one step in the argument, and then treat it as a proved basis for the next step, is not a sort of reasoning to inspire much confidence.

The complete excavation of the site of the Basilica Julia on the western side of the Forum, showing that the length of the building was from north to south, Mr. Parker considers has also settled the name of the three celebrated columns which stand in a row at the south end of the Forum, and the capital of which used to be known and copied by every architectural pupil, in the good old days, as "the capital of Jupiter Stator." It has long been admitted, however, that the Temple of Jupiter Stator could not, consistently with various ancient references to it, have stood here; and the mention in the inscription of Augustus (known as the *Monumentum Ancyranum*) of the Basilica Julia as extending "from the Temple of Saturn to that of Castor and Pollux," along with other evidence, seems to settle the point, now that the actual length and direction of the Basilica Julia are known. But while Mr. Parker gives full weight to this evidence as fixing the position of Castor and Pollux at the south end of the Basilica, he evades its equal significance as fixing that of Saturn at the north end. Supposing the north-western temple, which Mr. Parker calls Vespasian, to be (as Cavina and nearly every one since him are agreed) the Temple of Saturn, the two temples then exactly correspond with the description in the *Monumentum Ancyranum*: the front of the Temple of Castor and Pollux appears at one end of the flank of the Basilica, and that of Saturn at the other end: whereas Mr. Parker's Temple of Saturn (according to his own plan appended to this volume) leaves a distance of at least half the length of the Basilica between it and the latter, besides being in no sort of range with it, as the other temple is. We do not see how Mr. Parker is to get out of this dilemma.

The most daring of Mr. Parker's restorations in connexion with the Forum, however, is that of the supposed bridge of Caligula, who is said by Suetonius (and by him alone, we believe) to have connected the Capitoline Hill with his palace on the Palatine by a bridge. This is a puzzle, certainly, as it is difficult to understand how a bridge of the necessary length and height could be constructed, for so unusual a purpose, and be mentioned by no other writer, and leave no trace behind. We may refer to the remarks of the late Mr. Ashpitel on this point, in his paper read at the Institute in 1857, in which he suggested that as Suetonius says nothing of building a bridge, but talks of Caligula crossing over the Temple of Augustus by a bridge "thrown over" (*ponte transmissio*), and as one of Caligula's recorded habits was to scatter money to the people from the roof of the Basilica Julia, he may have had a light bridge made from the roof of one temple to another. Mr. Parker, however, believes he has found the evidence of the built bridge, and in a couple of geometrical drawings (plates 23, 24) shows us the commencement of a great bridge in three tiers of arcades one upon another, starting from certain

well-known ruins under the Palatine Hill, and passing behind the Basilica Julia; and in his plan he dots the piers of this bridge* right across the valley to the Tarpeian Rock. And what is the authority for this tremendous construction? A couple of springers of arches from the remains of the arched brick building of the time of Caligula, which stands behind the Temple of Castor and Pollux; and which springers point, Mr. Parker says, in the direction of the Capitoline Temple which stood on the Tarpeian Rock. In addition to this, we have the assurance (in the notes on plate 23) that certain remains of the piers have been found under some houses near, and though much concealed, have been examined and measured by "an architectural draughtsman of much experience." Mr. Parker, however, does not venture to assume a single positive base of a pier in his dotted line of the course of the bridge on the general plan; the only thing he shows us is this impost of an arch, pointing in the required direction. If this is to be taken as evidence of a bridge a quarter of a mile long and 100 ft. high, in three stories of arcades, of which no other vestige is shown and no recognisable mention made by any one, this will be the most remarkable impost ever known, and the science of Roman archaeology may be said to be a study highly stimulating to the imagination. If the "able architectural draughtsman" can find any further vestiges of the piers along the line traced on Mr. Parker's plan, the case would, of course, be quite altered; there must be some, if such a structure existed; but, until this evidence is forthcoming, we must, at least, remain sceptical.

Among the photographs appended, besides those already mentioned, are some which show very vividly the character of the ancient masonry, such as that of the Cloaca Maxima, and the view of the piers and arches at the north-west angle of the Basilica Julia; and one or two photographs from the bas-reliefs formerly in the Comitium: one piece of these (plate 15), showing the procession of the Bull, Ram, and Boar, for the sacrifice on the occasion of the *Lustrum*, or census, is interesting from the broad and conventional and yet vigorous style of the sculpture. The photographs appended to the remarks on the Via Sacra are of perhaps greater interest as delineations of the character of ancient masonry; but into this part of the book, which is an entirely separate section, we have not space to go on this occasion.

We observed at the commencement of our remarks that the present volume appeared somewhat less confused than its predecessor,—a rash conclusion, which we have had full space to repent of before coming to this point of our observations. As remarked before, we are convinced both of the value and the correctness of Mr. Parker's facts, and it is possible that their relations and the deductions therefrom may be clearer in his own head than the reader would conclude from his mode of putting them forth. But the utter literary clumsiness of his publications; his habit of continually dragging into a paragraph observations referring to another argument carried on at another part of the book, and having not the slightest perceptible relation to the context; the unmeaning and useless repetitions of the same thing (the story of the Emperor Pertinax and the Temple of Concord, for instance, is repeated no less than four times in different places), and the confusion and inaccuracy in which the letter-press is left, make the study of his results one of the most vexatious exercises possible. As a specimen of what Mr. Parker's readers have to put up with, we may mention that in the general chapter on the Forum, forming the bulk of this section of the work, fully three-fourths of the references (in the notes) to the numbered plates are wrong! Indeed, we were coming to the conclusion that they must refer to some other volume, but as about half a dozen are right, it is evident that the other mistakes simply arise from utter carelessness or confusion in correcting the press. Readers might be pardoned for concluding that a writer who is so confused and unbusiness-like in his method (?) of book-making may be equally confused in his methods of thinking. If Mr. Parker, instead of shovelling out periodically a heap of facts arranged anyhow, would put his results from time to time into the hands of some friend able to put them for him into a connected and literary form, and to correct the proofs properly, we might have a connected

record of modern Roman archaeology no less interesting than valuable. As it is, only the conviction that his chaotic volumes do contain a great deal of information could induce any one to undertake the wearisome task of struggling through them.

WINTER EXHIBITION AT THE DUDLEY GALLERY.

THE tenth winter exhibition of cabinet pictures in oil opened at this Gallery on Monday last. It can hardly be said that the collection is a very remarkable one; there is an average of good workmanship of no particular originality or character, but very few things calculated to "give us pause" in going round the room. Among these may be named Mr. Hemy's "Baiting the Lines," an interior of a fisherman's cottage in which a somewhat hard and nonchalant young woman, evidently a study from life, is engaged as described, while a younger girl waits placidly with hands crossed, apparently the messenger to the beach when the operation is complete. The painting is in a broad, almost rough, manner, but every detail is in keeping, and helps the total expression, which is not a little pathetic. Mr. Hemy also has a fine fresh out-door coast scene, "Out with the Tide," in which he seems to be breaking through a certain degree of mannerism in the tone and treatment of water which we were beginning to be conscious of in his works. Looking at the other works in which figures form the predominating interest, we may note M. Lhermitte's "Corner of the Market at Plondalmézeau" (96), a group of market-people drawn and painted in that easy spontaneous manner and full broad style of colouring which mark all this artist's works, but not a picture which will bear looking into like some of his; see, for instance, the right foot and ankle of the woman walking from the spectator, on the left. The seated figure in the foreground is, however, remarkable for a grace and dignity of attitude attained without sacrificing the rustic character. Mr. E. H. Fahey's "Nuts in the Fire" (153) occupies the angle position which others of his works have filled before: it represents a very vulgar and stiffly-drawn young woman trying her fortune with the nut which she holds to the fire as she kneels before it; the accessories are brilliantly painted. Mr. P. R. Morris sends the sketch for his picture of "Breezy June" in the last Academy, and a very clever slight picture of two girls walking along a lane in a "dust-cloud" (197); the effect of wind in the trees, and the action of the nearest figure half leaning back to the gust, are very well given: this is perhaps the most really original work in the collection. Mr. Watts's "Samson" we take to be a study of a figure with this title given to it subsequently, and a few dead Philistines put in to carry out the subject; the hero, nearly naked, is seated and resting after the affair of the jaw-bone, wearied and apparently very dejected; the figure is a fine one. Over it an elaborately-decorated interior, with a disagreeable-looking woman in the middle, shows Mr. Valentine Bromley's idea of "Sweet Home" (180), and below it Fantin's small work, "Baigneuse—Soleil levant" (185), the figure crouching beneath trees in the foreground, half seen in a grey misty light, has artistic power and feeling. Mr. Richmond's "Watchers" (298), an allegorical or supernatural subject representing naked angels, with considerable muscular development, seated by a corpse, contains fine drawing and colouring, but intellectually is too unreal to be of any interest. Mr. Heywood Hardy's "Country Circus" (309) fails in the opposite direction, and Mr. Macbeth's "Quiet Day at the Zoo" sounds the very base string of vulgarity. In "Twilight Tones" (353), a faintly sketched shadowy group of rustics in an evening landscape, Mr. P. R. Morris recalls, whether purposely or not, a little of the feeling of Mason; slight as the thing is, it is a great relief after some we have noticed. Mrs. Kate Bieschop's "Treasure of the Family" (386), where a Bible is uncovered and shown to two children by their mother, has a power of handling, at least, which might have earned it a better place. Mrs. Jopling shows less finish, but more force and freedom than usual, in her pleasing study of a young lady engaged over "Geography and the Use of the Globes" (391), and her portrait head entitled "Looking Forward" (161) has fine qualities. Among smaller figure-subjects that are worth notice may be mentioned Mr. Yeames's "Moonlight" (88) in the courtyard of an old home-

* The statue does not come into Mr. Parker's argument, because he denies that the pedestal in the Forum has anything to do with the statue described by Statius, and says it is that of the statue of Constantine, which was in this *Regio*. But he makes no suggestion as to the whereabouts of the statue of Domitian described by Statius, in a manner completely fitting the position of the excavated pedestal.

* The dotted squares on the general plan are evidently meant for this, though there is nothing to tell us so; as, although Mr. Parker's plan is covered with reference numbers up to 40 or so, the explanatory notes appended only go up to No. 9; the meaning of the other numbers the reader may find out how he can.

stead, with a pair of lovers thrown in, which is very like moonlight; Mr. Cotman's "Little Bookworm" and "Expectation" (207, 225), both child studies; Mr. Cauley's "Near Milking Time" (276), a study of an old bit of farm-building, with one figure; Mr. Macquoid's "Going Home" (281), a little child drawn along in a wagon by her sister, the group backed by a dark hedge; Mr. Hoveden's "Aline thinking of Yan" (396), a capital study of a strong fat strapping lass leaning back from her wheel to indulge in a sentimental reverie; and Mr. Marks's little study in which "A Book for the Beach" (265) is read by a young lady who sits on a balk of drift timber with her back to us, but with an attitude and manner full of character.

There are some good landscape studies in the collection. Madame Cazin's "On the Coast—a Sketch" (50), shows to the full her usual powerful style, in which realism of tone and effect are blended with poetic feeling. Mr. Legros has a rather large landscape, "Les Bords de la Sazon" (343), a dark evening scene, with qualities which should have given it a better place in the hanging. Mr. Joseph Knight's "Moorland" and "Showery Weather" (181-3) have certainly a very strong family likeness to other works, but are very good. Mr. H. Moore's "Gale Freshening" (59) needs no description of its character to those who are familiar with this painter's studies of sea; it is quite in his best manner. Mr. Ernest Waterlow, whose power in his art increases year by year, has two admirable works, "Salt Marshes" (57), and "Devonshire Lowlands" (318); the latter an evening scene of low meadowland with a river, and figures apparently gleaning, and a dark bank of trees making a silhouette against the evening sky: a work full of real feeling. The last words may apply equally to the small picture by Mr. Hetherington, called "Michaelmas Eve" (241), a foreground of dark grass field, with a group of cottages and their high garden-hedges behind; there is a great charm about this little work. Among other small paintings which possess the special interest arising out of originality of feeling or treatment are Mr. Lloyd's "Away in Devon" (40), a farmstead scene, painted a good deal in the French style of handling; "Oatfield, Overton" (97), a slight study, by Mr. Aumonier; "The Crabs at Dunwich" (121), a study of seaside barrenness, by Mr. Edwin Edwards; "Evening" (146) by Mr. A. Clay, very effective in the tones of the foliage; "Moorland" (290), by Mr. Frank Walton; two small landscapes by Mr. Marks (78, 80); "Clovelly, from the Head of the Street" (212), a view down the steep street, with the sea seen over and between the white houses stepped down the street, an effective study of buildings. Mr. Macquoid contributes an architectural subject,—a bit of "Bolton Priory" (122), concerning which we have our doubts. The running panel ornament cannot (if correctly drawn here) be of the same date as the intersecting arcade beneath it; but there is not the slightest distinction made in the texture or tint of the stone. We cannot help thinking that either drawing or colouring must be at fault, and that the painter has made a mistake through want of familiarity with architectural detail. Among subjects from the lower walks of "life," Mr. Couldery has a cat painted à merveille (425), and Mr. John Emms a capital study of a foxhound puppy (452).

ASSERTED FAILURE OF SANITARY MEASURES.

THIS result, we fear, will be the inference drawn from the address delivered by Mr. Thomas Hawksley, C.E., at the Liverpool Social Science Congress, as president of the Health Department. It was an able address, as a matter of course, but so reactionary in parts that it may throw fresh obstacles in the way of those who are seeking to advance the public interest in this direction. We give a summary of the more striking portions of it, and will return to the subject.

Mr. Hawksley said,—The working men and their belongings constitute by very far the largest element of the vast population of the country. It is their interest in the important questions I propose to discuss in this address with which I shall chiefly concern myself; and with this object I shall confine my remarks, for the most part, to matters of a practical character bearing upon the topic of "Health," to which the attention of my section of the Association is more especially directed. For obvious reasons, I shall also con-

fine my remarks to matters affecting the people of England and Wales, which for brevity's sake I shall hereafter designate by the word England only, and this the rather because each of the sister kingdoms of Scotland and Ireland has her own special sanitary legislation and her own special local government. The population of England now amounts to 24,000,000 persons, distributed over about 30,000,000 acres of cultivable land. There is, therefore, one person to one acre and a quarter, whereas in most (and averagely in all) of the other kingdoms of Europe there are about five acres of land to each person; and on the entire surface of the earth, exclusive of the arctic zones, about ten acres of land to each person; or, after a fair deduction for uninhabitable deserts and mountains, probably seven or eight acres of cultivable land to each person. Mr. Hawksley then alluded to the rapid increase of the population, and showed that in seven generations from the present time the people of English descent would more than outnumber the present entire population of the world, and in twenty generations they would have so increased as to require fifteen worlds as populous as our earth now is for their habitation. This he regarded as a most serious anxiety to the statesman, the legislator, the economist, and the sanitarian. In reference to the supply of food from abroad for the great bulk of the people, it did not appear to have struck any person that circumstances might arise in which there would be a deficiency. The Customs returns enable us to estimate that about 40 per cent. of the most important articles of the food of the people now comes from abroad, and this, too, for the daily sustentation of the existing population of 24,000,000,—a percentage which, year by year, will be sensibly added to as the population of our country continues to augment. We look at our Board of Trade and at our Customs returns; we rejoice because we find so many millions of exports and so many other millions of imports, and we exclaim with vast exultation, "Eheu! was there ever so great a nation as the English?" But we are utterly oblivious of the all-important fact that our exports consist of commodities we cannot eat; whilst our imports consist largely of commodities without which we should surely sicken and starve. Now, I ask you, as earnest sociologists, whether a nation can, in the proper sense of the word, truly say of itself, "I am great," so long as it is unable, if need be, to maintain itself? I look, indeed, with alarm to the signs of the times, the general restlessness of European nations, and the possibility of our being entangled in a war—perhaps a war of creeds, ultimately to extend itself to a war of aggrandisement and conquest; for, without in the least doubting the prowess of England, and her ultimate ability to come with glory from the fray, I cannot avoid expressing the apprehension that our supplies of food from abroad may be for a time very seriously interfered with, if not wholly interrupted. The practical sociologist must extend his views beyond the necessities of the hour. The number and consequent density of our population is year by year becoming greater, and year by year each individual of us, intentionally or unintentionally, becomes more earnestly engaged in the disagreeable endeavour to elbow his neighbour out of his way. We rejoice—fatuously, I would say—and sing psalms in praise of the increasing strength and prosperity of the nation—the strength of a noble structure firmly based upon a visible rock beneath which a mine has been cunningly laid, when to explode Heaven only knows. Would that our Government would exercise itself in that political prevision which looks rather to prevention than cure; for I am well assured that the now-existing waywardness of our working population, its spirit for menacing combinations and trade unionism, its misguided endeavours to compel the employment of three men to do two men's work, its ignorant belief that increased wages necessarily imply an increased purchasing power, its utter forgetfulness that, as working-men are customers one of another, they must eventually lose on the one hand as much as they gain on the other, besides placing themselves and their country in an unfavourable position with other nations trading or competing with us, and also its blind adherence to arbitrary rules and regulations as harassing to the immediate employer as they are annoying to the general public—all have their origin in the apprehension (unfounded though it may be) that we stand too closely upon the ground to make free and independent action perfectly safe each to each. In my

opinion, then, our cry ought to be for "space—more space"; and, looking to the enormous extent of our colonial possessions, it appears to me that a most important opportunity now presents itself warranting our Government in affording facilities—I do not say inducements—to enable the surplus working-man to better his condition, if he so desires, in other suitable climes. Mr. Hawksley then traced the history of the struggle to raise high prices in this country, by which he thought they had damaged irretrievably the manufacture and commerce of this country, and had driven America, Belgium, France, Russia, and Prussia to create extensive mining and manufacturing establishments, which but for their imprudence would not have been wanted, and these were now actually supplying the English markets in considerable quantities with goods of which England had previously had the monopoly. We have, he said, at this moment an increasing population and a declining trade. I now pass to the consideration of another branch of this address. Are sanitary sociologists drawing correct and useful inferences from statistical facts? For my own part, I think they are not, and that in consequence much valuable time, and what might be useful effort, are utterly wasted and worse than thrown away. At your last year's congress a most remarkable and highly captivating address was delivered from the place I have the honour to occupy, in the course of which the learned president announced his ability to construct a city of health possessing sanitary advantages capable of extending the duration of the lives of its fortunate inhabitants to a mean period of 200 years; and consequently amongst whom a still more favoured few would, in obedience to known laws, continue in existence to the end of a fifth century. I have shown the evils of our present rate of increase with an average duration of life limited to 42 years, but what those evils would become if the span of life were protracted nearly fivefold it is quite beyond my powers even to conceive. The story of the city of health appears to have been as seriously as it was delightfully told, and, at all events, it finds its place and importance amongst your formal transactions. Now, what are the facts established by the statistics collected by the Registrar-General for public information? First, that the actual duration of human life in this country is under 42 years; secondly, that since the year 1838 (when the office of the Registrar-General was established) down to the year 1873, in all thirty-six years, there has not been an atom of movement towards the extension of that duration, notwithstanding that in the meantime there had been "heaps" of publications, official and otherwise, on the subject of health, unnumbered Acts of Parliament had been passed, and millions of money had been expended on making sewers, supplying water, building baths and washhouses, laying out sewage farms, and in the performance of other structural operations undertaken in the interests of health. Our municipal debts principally incurred on this head now amount to nearly one hundred millions of pounds sterling, and are fast increasing; and yet, without any effect having been produced in or towards the prolongation of life. An elaborate tabulated statement follows, to show that the mortality is 23·3 in 1,000 in the case of males, and of females 21·2 per thousand. But why, it will be asked, have our efforts for the prolongation of life been unavailing? In reply, because, as it appears to me, the wear and tear of the mechanism of the human frame is due mainly to natural organic changes and the repeated action of its parts, and particularly of those parts which are the subject of involuntary movement. These changes, and these actions, and the wear and tear they involve, are all evidently accomplished in given periods of time, differing very much in the individual, but obtaining a fixed ratio in the mass. Apart from the disturbing influence of epidemic diseases caused by atmospheric and cosmical action over which sanitary measures can exercise only a very limited control, we may, I think I may, with tolerable safety, pronounce that sanitary science, as at present applied, although in other ways of infinite benefit to the community, is not capable of materially extending those limits of life which nature has in her wisdom prescribed. At all events, the patriarchal ages assigned to the inhabitants of the city of Hygieia will never be reached if that city be built on any part of this sublunary sphere. I must not, however, be misunderstood whilst giving utterance to a doctrine so much at variance with accepted opinions. I

do not intend to convey the idea that by sanitary efforts we cannot diminish the undue waste of life we observe on all sides—but most amongst the labouring classes—a silent waste greater than that of a battlefield,—but I do desire to draw attention to the circumstance that we commonly omit from our regard the involuntary work of the human machine, which, exactly like the involuntary work of a watch, sooner or later (according to the particular constitution of the individual), ends in its failure and stoppage. The human heart cannot beat 100,000 times a day, nor the lungs expand and collapse 20,000 times a day, without suffering the usual effects of wear and tear—effects which manifest themselves in all of us, even when disease has no part in them, by producing a gradual change of appearance indicative of increasing age, the softer features of youth becoming the harder but still handsome features of middle life; these again yielding in turn to the wrinkling brow and the crow's foot near the eye, the uniform tint of the hair changing to grey and finally to white, the strongly-knit muscles gradually becoming more and more relaxed, and answering less and less easily to the behests of the will, till at length tottering humanity sinks into that grave which nature had destined for its reception from the moment of its birth. The span of life cannot be extended beyond the natural limit thus indicated, but it may in many ways be shortened. It is the business of the true sanitarian to be, above all things, practical, and with this view to point his efforts in the direction in which alone useful results can be obtained. Hitherto we have in some degree mistaken our way. We have relied too exclusively upon the consequential effects of improved water supplies, improved drainage, and improved pavements (each of great value in its particular way), but evidently not very potential in enabling the human machine to resist those far more destructive influences to which I shall, in the sequel, solicit your earnest attention. For thirty years I have devoted myself to the investigation of this important question, and have finally arrived at the conclusion,—a conclusion based on statistical research and personal observation,—that the natural turn of life of our urban populations is unnaturally shortened by preventable causes to the extent of one-fifth, and that these preventable causes are to be sought not in the water-pipes and sewers, but chiefly in the homes and habits of the industrial classes. I now pass to the subject of sanitary legislation. Numerous Acts of Parliament for effecting sanitary improvements have of late years been passed, but they are nearly all impaired and disfigured by the spirit of centralisation which pervades their enactments, and which operates most depressingly on the freedom of our municipal and other like public institutions, and on the development and exercise of the skill and ability in which this country is so redundant. Nothing can be done without the intervention and interference of a Government department, which has its own limited views and peculiar crotchets on all subjects,—medical, physical, constructional, and financial,—and to which every one concerned must either conform or succumb. You are aware that an Act has just been sanctioned to prevent the pollution of rivers, and you will probably one and all be of opinion with me that reckless and unnecessary pollution ought to be stopped. The law as it had previously stood was undoubtedly sufficiently powerful to effect this object, and consequently all that was really necessary was a cheaper and more facile procedure for bringing that law into operation. The new Act not only creates new laws and new procedures, but is also tainted with the vice of centralised action by the Government itself, who of all things ought not to have placed itself in a position of invidious relationship, sometimes between weak landowners and powerful manufacturers, and at other times between powerful landowners and weak manufacturers. A Government, to be respected and popular, must keep itself above the suspicion of favouritism, and should steer clear of all the entanglements into which unnecessary intervention in matters of private interest or cognisable by legal tribunals is certain to bring it. Mr. Hawksley then referred to the action which had taken place with regard to the sewerage of the country, to the process of disinfection, to the Artisans' Dwellings Act, and especially to the smallness of dwelling-houses, and the consequent want of cleanliness, and said,—It is my conviction, long entertained, that the sanitarian, the educationist, and the clergy will equally fail in their efforts to improve the health, the education, and

the moral and religious improvement of the inhabitants of the class of dwellings to which I am now directing my observations until that class of dwellings shall have entirely disappeared. The chief difficulty lies in the possible costliness of the operation, but in some way this cost must be met before there will be any great outcome of our endeavours to elevate the lowest stratum of society. In fact, we need innumerable cities of Hygeia for the occupation of our working population, not exactly of the noble character of the gorgeous city painted in such glowing colours by my learned and warm-hearted predecessor, but planned almost entirely with a view to health and comfort, and constructible at a cost which shall not place the new dwellings beyond the reach of the people for whom they are intended. Omitting, for want of time, many important subjects I wished to include in this address, I must not forget that we are now present in the mighty city of Liverpool, a city which has received us with marked distinction and unbounded hospitality; a city which, be it remembered, took the lead in the promotion of sanitary measures; for in the year 1842, six years before the passing of the first Public Health Act, the Corporation of Liverpool sought and obtained an Act entitled, "An Act for the Promotion of the Health of the Inhabitants of the Borough of Liverpool, and the better Regulation of Buildings in the said Borough." This Act was, however, mainly a Building Act; and in consequence of being an unavoidable compromise between the builders,—a very influential body at that day,—and the Town Council, was in some respects defective and inefficient. Nevertheless, great good resulted from it, for houses subsequently erected were better planned and better built than had previously been the case. It was followed by other sanitary measures of greater importance. In the year 1845 the Town Council turned its attention to the subject of water and the inadequacy of the then supply, which was limited in the southern portion of the town to about 10 gallons per head per diem for all the purposes of domestic, trade, and manufacturing consumption; and in the northern part of the town to not more than 7 gallons. These supplies, amounting in the aggregate to about 4,000,000 gallons per day, were obtained from the new red sandstone rock, by means of wells, from which the water was, and to some extent still is, raised by steam power. After tracing the various measures which had been adopted for the supply of Liverpool with water, Mr. Hawksley continued, under the now existing conditions of the water supply of Liverpool—than which no city possesses a better, and few cities a cheaper, for the average charge does not exceed 7d. per 1,000 gallons—I think we may well congratulate the corporation on the complete success of this their greatest enterprise. Mr. Hawksley then alluded to the water-supply of Liverpool, and to the saving in waste water which had been effected through the agency of the borough engineer, and, in conclusion, said—It has been the habit of sanitary philosophers to regard the condition of the health of Liverpool as being exceptionally and pre-eminently "bad." The condition of the health of Liverpool is, however, I am glad to have the opportunity of stating, not exceptionally and pre-eminently bad. Comparing the state of Liverpool with the state of the other large cities most nearly approaching to her, namely, Manchester and Glasgow, what do we find? I will quote again from the Registrar-General's official returns; and, not to do an injustice to any one of these cities, I will append the mean of the deaths per thousand in each of them for the last seven successive years, which was—Liverpool, 30.1; Manchester, 30.1; Glasgow, 30.5. It is thus established that, in its sanitary status, Liverpool does not rank below Manchester and Glasgow, two cities on an equal footing with herself in respect to water supply, drainage, street formation, and municipal government, although somewhat dissimilar in the occupations of the people and in the structure of their dwellings. To what common causes, then, are we to attribute the equal excess of mortality to which the populations of all these great and important cities are subjected? I confess myself unable to answer with absolute certainty my own question; but I venture to suggest the pernicious effects of overcrowding and habitual inebriety. To the former I attribute the excessive waste of infant life, and to a combination of the two the correspondingly excessive waste of adult life. For the mitigation of these considerable evils so seriously affecting the health

and happiness of the industrial classes, we must look to better dwellings, thorough ventilation, improved legislation in respect to the traffic in intoxicating drinks, and the general education of the rising generation in habits of order, sobriety, cleanliness, and prudence, rather than to measures of compulsion and restraint.

HEALTH QUESTIONS AT THE SOCIAL SCIENCE CONGRESS, LIVERPOOL.

Water Supply.

MR. BALDWIN LATHAM, C.E., amongst others, contributed a paper on the subject of Water-supply, in which he said that there were conditions which affected the quality of water which appeared to have been neglected. It had been generally concluded that water which had received the sewage of large populations must be unfit for domestic use. Careful investigation, however, showed that when such polluting matter had been poured into a river, and exposed to the influence of light, vegetation, &c., it became innocuous, as was shown by the good health enjoyed by the inhabitants of London, which city chiefly received its supply of water from the Thames and Lea, both of which rivers received a considerable amount of sewage pollution. The cholera epidemic at Newcastle-on-Tyne, in 1853, was supposed to be caused by the use of polluted Tyne water; but an investigation, conducted by Dr. Waller Lewis and Dr. Main, showed that disease was far more rife among persons using local well-water than among those who used the polluted water of the Tyne. The evidences, however, with regard to populations which received their supply from underground sources or from sources which had not been subjected to the influence of light, were very decided. Universal testimony of observed facts with reference to subterranean water-supply showed, beyond doubt, that focal contamination finding access to such sources, was invariably followed by serious consequences to the persons using those supplies. Mr. Latham, after pointing out that water which was exposed to the light and vegetation was subject to remarkable purifying powers, and that the quality of water in a great measure depended upon its aeration, observed that in the collection of water from distant and elevated sources there was great danger of pollution by means of the air which was held in the interstices of the water, which was a porous substance. River-water which was collected at the low levels of a district in which it was supplied, instead of absorbing air, parted with it upon being raised from a low to a high elevation. The disturbances of temperature to which water was subjected naturally affected its aeration and purity. Water stored in cisterns within the confines of a crowded town had its purity greatly injured by foul aeration, as was exemplified in the case of Glasgow, for the water in that city, when stored in covered cisterns, rapidly became fouler than the ordinary water-supply of the river as furnished by the Thames to London. Water brought to a town from distant sources was subject to greater changes and vicissitudes than was the case when the supply was procured from a local river. Pure water would contain more air than water containing salts, so that a water containing a moderate amount of saline matter was not so powerful in producing impure aeration as a more pure water. The author of the paper then gave some facts as to Liverpool, which had such a notoriously high death-rate, in spite of the magnificent and strenuous exertions of the governing body. It was pointed out that the sewers of Liverpool were, in some cases, simply hewn out of the solid rock on which the town stood; that from the same geological formation many million gallons of water were daily procured for the supply of water to the town; that the red sandstone formation from which this water was procured was very porous; that the influence of the drainage from pumping from local wells extended to considerable distances; and that in all probability the water now procured from the local sources of supply was derived from such polluted sources as the sewers and rivers.

Dr. Stevenson MacAdam, of Edinburgh, had a strong conviction that the hill water, or that obtained from high or upland districts, was more pure than that obtained from the valleys. There could be no doubt that wells were frequently contaminated even when the water did not present the slightest appearance of impurity. He

disputed the doctrine that rivers were better purifiers of water than wells. The rivers themselves became impure. He could not agree with Mr. Baldwin Latham's ideas as to aeration. He did not think that air was mechanically held in the interstices of water, and he believed that very often water from a high level was supersaturated with air.

Dr. Fergus, of Glasgow, spoke of the water supply to that city, where, he said, he had never known a case of lead poisoning. In Glasgow, they had a constant supply, and a constant supply was the right thing with regard to water. Having held that no river would oxidise the water, he humorously referred to a well in Glasgow or its neighbourhood, the water of which had been cut off some time ago. The well, however, was supplied with Loch Katrine water, and people, in taking their morning "constitutionals," drank it, thinking they were drinking the real water. Speaking of the necessity of testing well-water, he said that out of twenty-eight wells which he had examined at a favourite watering-place, he only found one in which the water was not impure. He urged that all well-water should be tested, and if ammonia was found in it, they should have nothing to do with it.

Professor Wanklyn, Mr. G. B. Galloway, and Sergeant-Major Black next addressed the section. The latter speaker, in the course of his remarks, spoke of the great purity of the water supplied to Aberdeen, and said that in 1866, when cholera prevailed in that city, not one case of the disease was traced to the water. The disease was brought to the city from the eastern coasts of the Baltic by seamen, and was thus communicated to the inhabitants.

Mr. W. J. Cooper pointed out the injuries caused to men and cattle from drinking water which contained quantities of sulphate of magnesia and soda. He mentioned the case of a stud of horses belonging to Mr. Tattersall which died one after another from this cause. In considering the water-supply of a town, he urged that the quality of the water should be carefully examined. Referring to impure ice, he said that he had examined a pond near London from which ice was taken, and he found the water contained a large quantity of organic matter, which was calculated to make people ill. Nineteen hundred years ago, he said, there was a great "row" in Jerusalem about the water-supply, which was not sufficient, and the Roman governor, who was anxious to get a proper supply to the city, proposed to bring it from a distance of fifty miles. The Jews refused the money for the purpose, when the governor, Pontius Pilate, seized upon the sacred treasury, and made an aqueduct through the solid rock, thus carrying water to Jerusalem, and this existed to the present day. He had an opportunity of constantly examining water from all parts of the country, and one could scarcely believe the filthy state of the water which people drank. Unless greater power was given to medical officers of health to shut up wells, he believed that disease would spread all the more rapidly.

Mr. Alderman Bennett observed that neither the readers of the papers nor those who had taken part in the discussion had in the slightest degree changed the opinions which he held on the subject when he entered the room. The water from the deep wells in the neighbourhood of Liverpool was proved to be purer the deeper they went down for it, and it was a very simple thing to keep out of the wells surface impurities. They could from the wells obtain any amount of pure unadulterated water to the end of time. He did not think the red sandstone objections of Mr. Symons were at all tenable. In making provision for the supply of water to a large town the first consideration was quality. He had no doubt that by a system of boring they in Liverpool could be put in the happy position of having an unlimited supply of the purest water. He thought that nine-tenths of the ratepayers of Liverpool were of opinion that no outside scheme should be entered upon by the Corporation until it was either proved or disproved that a good supply of pure water could be obtained in their own locality.

Mr. Owen Williams, after remarking upon the necessity for a plentiful supply of pure water, alluded to the deleterious effect of sewer-gases finding their way into traps and syphons, and said it was time the Government took the question of water-supply in hand. He showed that if the Government took it in hand, they could, by an expenditure of 50 or 100 millions—which would only involve a rate of a penny or twopence in the

pound—procure a plentiful and pure supply of water.

Dr. Haviland remarked that he would advise the people of Liverpool, before they decided upon such a momentous question as that of a new water-supply, to discuss it well, and get every fact possible. He hoped great good would result from the operation of the Rivers Pollution Act, and pointed out the importance of keeping sewage out of their water-courses and protecting their wells. He moved a resolution to the effect that the three papers read be referred to the council of the Association for consideration.

Mr. J. Rayner (the town-clerk of Liverpool) seconded the resolution, and said he did not believe that any one could doubt the great value of the wells about Liverpool for water-supply. The great question, however, to be considered was whether the quantity of water required by Liverpool could be obtained by sinking additional wells. He did not think any one could be so sanguine as to suppose that in Liverpool they could attain such a degree of success in the sinking of additional wells as to get the 21,000,000 gallons a day more than they now got, and which they required. It had been demonstrated that the water in the wells was gradually going down and that one well affected another.

Mr. Deacon (borough engineer), alluding to an observation in one of the papers read as to the sewers of Liverpool, said that the new sewers in the town were built with brickwork in Portland cement, and many of them, both old and new, had their inverts lined with Portland cement, and were therefore almost as smooth and impervious as porcelain.

The resolution was carried unanimously.

Purification of Town Sewage.

On the following day, Mr. Hawksley, C.E., presiding,

Mr. James Banks (Liverpool) read a paper on "The Purification and Utilisation of Sewage," in which he stated that the system might be described as one of simple filtration and aeration. The constituents of the filters consisted of two or more feet in depth of well-burnt coal cinders, with a layer of soft bricks, and over that iron scrapings. The sewage in its passage through the filter was thoroughly aerated by constant exposure to atmospheric oxygen, which by a simple contrivance was made to pass through it at the points where it fell in the form of a shower from one compartment to another throughout its entire length. Aeration was considered to be an all-efficient agent in bringing about the desired results, and could not be too largely employed. The disposal of the sludge connected with all sewage operations had ever been the point where failure had been most conspicuous, its constant accumulation and offensive character making it difficult to deal with. By the system in question, however, it was constantly used up, and before putrefaction could take place was mixed with the fouled cinders from the filters, and dried by the absorbent and deodorising qualities of the screenings from them. The adaptability of such a scheme for Liverpool was manifest as being a means of relieving the Corporation of the great quantity of cinders produced in the borough, which was a cause of constant anxiety to the Health Committee.

Professor Wanklyn remarked that the difficulty which existed in connexion with the question treated of was that it cost more to extract the valuable matter from sewage than that valuable matter was worth.

Dr. Glazebrook, alluding to the West Derby sewage farm, attributed its non-success to its costliness, due mainly to the extravagant price which the Board were obliged to pay for the land and the large amount of law expenses that were necessarily entailed.

Mr. Baldwin Latham said that great harm had been done to the utilisation of sewage by inventors and engineers depreciating each other's plans.

The Inspection of Brick and Tile Yards and Canal Boats.

Mr. George Smith, of Coalville, read a paper on this subject. He said that if there was anything that would undermine the foundations of any family, institutions, Church or State, and prevent our Factory and Workshops Act being properly respected, observed, and upheld, it was disorder, confusion, and laxity; and that was apparent, to a large extent, in the way the Brick-fields Act of 1871 was being carried out. How could it be otherwise, when they took into consideration that the inspectors, by the passing of

the Act, had, in addition to their other duties, of visiting 100,000 factories and workshops, to look after some 4,000 or 5,000 brick and tile yards, on which were employed nearly 20,000 men and women, and the same number of children and young persons? Many of those yards,—as mostly the case with brickyards,—were up to the knees in mud and clay, and miles away in the country, and far away from any railway station. Inspectors, like other men had their likes and dislikes, and would naturally prefer visiting those works the cleanest and nearest their headquarters, so as to show the largest amount of work done in the least given time. He had visited brick and tile works and potteries in various parts of the country over and over again, and especially during the last few weeks, which had been in operation for years, and an inspector had not, at the time of his visit, set his foot upon the place, nor had any papers been sent to the employers informing them that they were under the Act. As a rule, he found it was the selfish employers, and not so much the men, that were opposed to the Act. Great objections had been raised as to the scarcity of children. If that were really the case, there would be more children upon half-time than there were. The Act did not lessen the number of children, it only sent them to school for a time. If the Act had been properly carried out at the commencement, the difficulty, if any, would long before this have been removed. It was pleasing to see the vast improvement among the men, women, and children, at brick and tile yards. The Brick-fields Act, if wisely enforced, lessened the amount of drunkenness so prevalent among brickyard employes. Large works with which he was connected for fourteen years carried out, as nearly as possible, the Act as it now stood, and the result was that he had not seen one dozen cases of drunkenness among the men. Some of the inspectors had done their duties well as far as they were able; at the same time there were those among them who, if they understood their duties better, would have lessened the complaints about the Act. With regard to the inspection of canal boats, Mr. Smith, after alluding to the manner in which the majority of boatmen, their wives and children, lived, said that no inspection could be carried out so effectively and cheaply as the inspection of canal boats. With the assistance of the lock-tenders or boat gaugers two inspectors would be sufficient, and if they were stationed at proper places they would be able to see the 20,000 boats on our 4,800 miles of rivers and canals twice a year, much easier than a factory inspector would visit 1,000 factories and workshops. Inspectors should be appointed, overcrowding in boat cabins must be stopped. Sunday travelling, except in special cases, done away with, and the children educated; for nothing short of that would be satisfactory to the country.

ART QUESTIONS AT THE SOCIAL SCIENCE CONGRESS, LIVERPOOL.

On the special question "What is the Influence of Academies upon the Art of a Nation?" a paper by

Mr. Watkiss Lloyd was read. The writer said the conditions of the discussion made it necessary to limit the scope of the inquiry. National institutions for the promotion of literature, science, and even the useful arts, had been entitled academies, but in the present paper he proposed to consider only the question what institutions would truly further the development of the fine arts. Painting had numerous diversities of its own, from draughtsmanship simple to water colour, oil, tempera, fresco, and encaustic. Sculpture in the round seemed to liberate itself gradually from high relief; the varieties of engraving, pure and combined, were well known; and even photography was gradually making advances to an exercise of taste which might at last render it a fine art. Speaking of the musical drama, he said it had attained its Continental perfection by national aid, and it was due to the absence of this that England still lay under the disgrace, in contrast with Italy, Germany, and France, of never having produced an opera which had won the established admiration of the world. In the case of the drama, the fact that the world had still the glory and delight of the representations of Moliere and Corneille and Racine was due alone to the sustaining power of a national subsidy. Restricting attention to the graphic and plastic arts, the

writer asked—Is national legislative interference indispensable in these cases, or may they be safely left to individual enterprise and competition, to that vaunted agency of supply and demand, or shall they be consigned to the attention that can be spared to them by professions, guilds, or academical associations? This question had partly been settled by the establishment of a public department of science and art. National interference to some extent was demanded both by the dignity of the subject, in which national dignity is involved, and by the large scope and complicated circumstances that had to be dealt with, when the thorough diffusion of art through the nation, and nothing less, was in question. Prudence dictated that such interference should apply first and exclusively to what was indispensable, and should then go on to what was additionally desirable and practicable, as occasion prompted development. What might be set down as indispensable was that a certain amount of art teaching should be accessible to all as readily as the rudimentary teaching which was the general basis of education, and that opportunities should be afforded to pupils of peculiar aptitude of gaining more advanced instruction. The chief work ought to be to remove all the obstructions which were possible from the manifestation and exercise of genius, and this ought to be kept in view when it was considered by what organisation the highest instruction might be afforded to the most promising aspirants of the time, the most useful aids offered to men who reach the highest general standard of artistic aptitude; and, above all, to the necessarily few of entirely exceptional originality and genius. It was desirable that every distinct art should have its particular organisation, and the functions which would be required in connexion with a central academy of the associated arts would be,—(1) Provision of the highest form of instruction for the most gifted and promising students; (2), the assignment of distinctions in the way of prizes and medals to students; and (3) the assignment by election of special honours to positions conferring rights, privileges, or titles. If a society could be so constituted as to perform these functions with efficiency, they might count upon membership being so honourable as to elicit the corporate spirit and enthusiasm of the association sufficient to add spirit to its working throughout. Generally, the writer's answer to the proposed question was, that the art of nations might be most beneficially promoted by the influence of academies, but only under the condition that such institutions were laid out on the most just and well-considered basis, or speedily reduced to such if they have declined into mere fortresses of unfairness and incapacity.

Mr. Boyd said it was a mere sham to find, in connexion with the Royal Academy, that there were a number of professors who never delivered any lectures on art, thus adding to the lustre of their names and the institution with which they were connected. He concluded by advocating the opening of art galleries on Sundays as a means of educating the people.

Mr. Aitchison made a vigorous attack upon the paper. He said it might have been divided into three sections,—one the section of education, another the repression of crime, and the third might have been sent to that limbo to which was consigned all constitutions for the general amelioration of mankind. Those things which the writer proposed they found generally ended in nothing. As far as the effect of academies of art went, no one who knew the history of art could have the least doubt that academies generally came into existence when art either did not exist, or when it had almost died out. They were what they might call a sort of shoddy machine for making a very excellent colourable imitation out of waste. If they looked at the arts in the past, they would generally find that in their most brilliant epoch nothing of the kind proposed existed. We had no academies for novelists; but probably if we had not had a Thackeray, a Brontë, or a Dickens, we might have got an academy of knowledge by which a possibly readable novel might have been manufactured. The theories as to how academies were to work were not for this world; they might possibly be carried out in another; and the only way in which he could see improvement could be made in art was for the people of England generally to admire it, to desire it, and be a judge of it. If they would do that, they would not have imitations passed upon them, and he believed that when there was a demand there would be a certain supply.

Mr. Tracy said it rather startled him to be told that when Oxford and Cambridge came into distinction as schools of great learning they marked a period when learning had begun to fall away; nay, more, he was not prepared to admit, as the last speaker argued, that the establishment of the Royal Academy, under the auspices of Sir Joshua Reynolds and his friends, marked a period when art had reached its culminating point; and that from that time until now it had been on the decline. That was the only interpretation they could put on the remarks they had just listened to.

Mr. P. H. Rathbone thought that the Royal Academy might do a great deal of work out of London, as to some extent it had restricted its operations too much to the metropolis, and to those who had determined to devote the whole of their life to art as a profession. They had, however, done a great deal in the work of educating the people out of London to an appreciation of art by the way they had supported their Liverpool Exhibition. He might say that so far as that exhibition was concerned the committee had endeavoured that it should be as widely visited as possible, and especially by the young, and every school in Liverpool, whether elementary or secondary, had the offer of visiting it once free. In conclusion, Mr. Rathbone advocated the organisation in all towns of a series of popular lectures upon fine art, and said that he saw no difficulty in the way of making such lectures popular without being superficial. The discussion afterwards closed.

The other papers read included one by Mr. Joseph Bonomi, on the importance of determining a canon of proportions of the human figure; one by Mr. John Bell on the unity of the fine arts; and a paper on the best method of securing street or any architecture, by Mr. A. B. Martino.

On another day the special question for discussion was, "What is the Influence upon Society of Decorative Art and Art-workmanship in all Household Details?" Mr. Poynter, R.A., presided.

Mr. C. L. Eastlake, secretary of the Royal Institute of British Architects, opened the discussion with an interesting paper. He said that within the last few years a marked improvement had been taking place in the decoration and appointments of English homes. After an interval of three generations people were beginning to feel that works of real art might sometimes be looked for beyond the limits of a picture-frame and below the pedestal of a statue. That this reform, which he believed to be a very healthy indication of natural taste, had at present made but a partial advance, might be inferred from the fact that we still found private collectors and dilettanti who lined their walls with pictures and filled their cabinets with bric-a-brac, but who furnished their houses as though they were ignorant of the first principles of design. In course of time, no doubt, furniture of a plain and homely description would partake of that improvement in form and material which now distinguished furniture of the best class; but until the manufacturer had been encouraged by people of taste and adequate means to improve the design of his goods, and until his workmen had thus been enabled by experience to get into the right groove of work and to revive the traditions of their craft, we could not expect that good taste which was stunted in the mansion would extend to humbler dwellings.

Mr. G. A. Audsley also read a paper on the same subject, in which he stated that to become an artistic nation they must surround their children and beset their path from their cradles with objects of beauty and utility, familiarise them with useful articles clad in artistic garb rather than with works of art which did not identify themselves with their daily wants and duties. Banish from our houses everything which partakes of the nature of a sham, so that our children may learn to respect the great principle of all art,—truth. The answer to the special question was, their influence for good was strictly in proportion to their artistic excellence and truthfulness. He should have great hopes for the artistic culture of the nation if he could see a widespread attention being paid to the art of decoration and furnishing of dwelling-houses. Looking at the state of household taste amongst us, more especially amongst the wealthy, his impression was that there was very little fine taste or love of art amongst those who most professed to be artistic. The widely-diffused idea that fine art was only to be found in framed and glazed pictures was doing more to destroy a popular knowledge and love for art than any

other active element at work. Why should they thus worship one phase of art to the exclusion of almost every other? It might be applied to works in mosaics, frescoes, painting (as applied to decorative art), sculpture, works in glass, textile fabrics, metal, and domestic furniture. After giving a graphic and lively account of a sample of popular modern house furnishing, Mr. Audsley said they could not long close their eyes to the fact that it was imperative upon us as a nation to strive after improvement in domestic art or household taste, and he looked forward with some hope, now that art had been recognised as an important branch of social science, to the day, not very distant, perhaps, when it would be a disgrace to decorate and furnish dwelling-houses as they are now too frequently done. He referred to the excellent work done by schools of art and fine-art museums, especially that at South Kensington, gave certain ideas of household art and taste, concluding by stating that in these there should be truth, beauty, and harmony, not only in colour, but in every work of art which a house may contain.

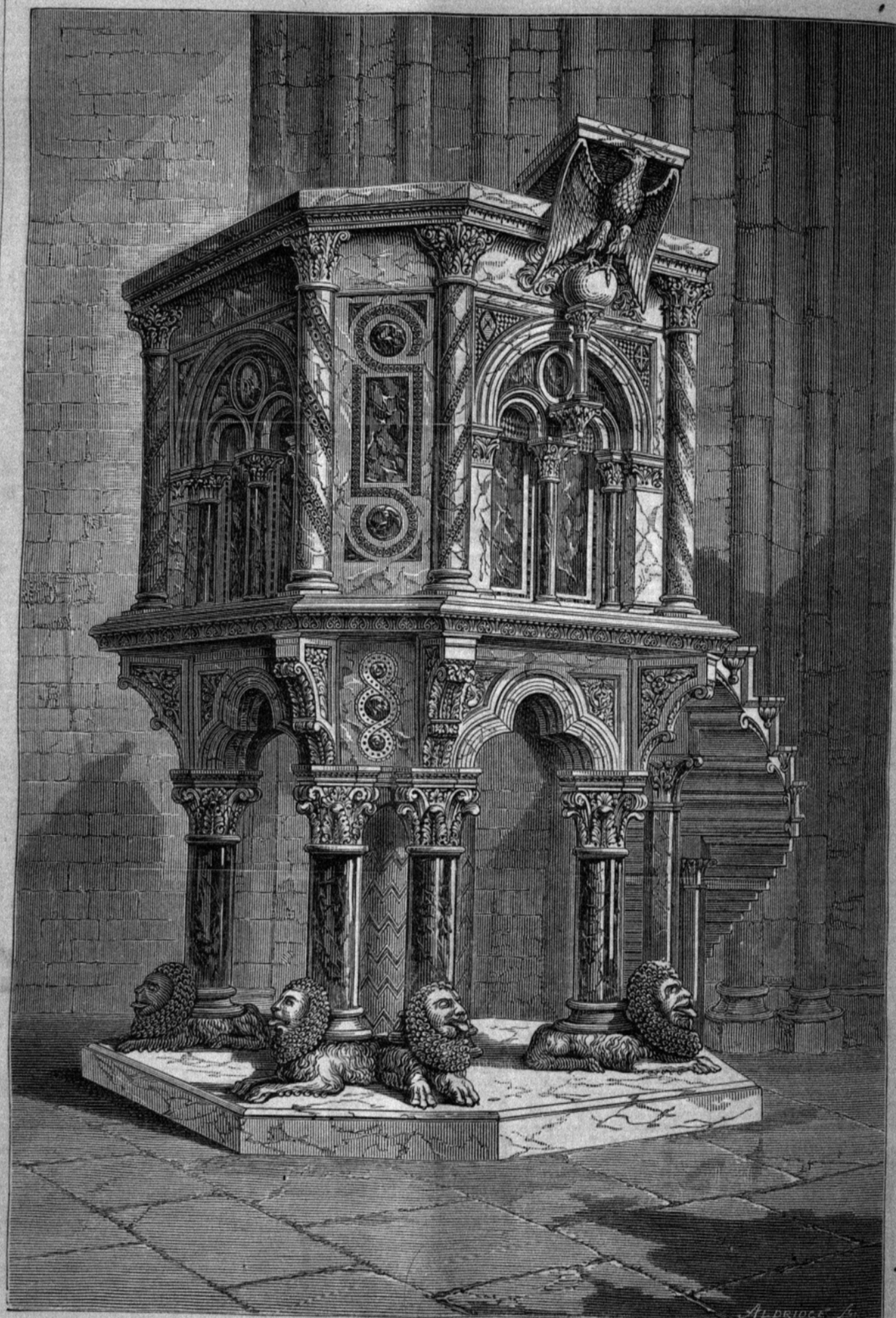
Miss Rhoda Garrett read a voluntary paper on the subject, "How to Improve the Interior of Modern Houses, with special reference to their Furniture and Decoration." The writer pointed out how the improvement of house decoration might be made the means of developing a wider interest in the higher branches of art. She drew a comparison between the houses of the seventeenth and eighteenth centuries and those built in the present day, and showed that a higher artistic taste might be profitably displayed in wall decoration, plaster work, and the construction of fixtures, furniture, and draperies. The question of women's sphere and women's right was one very much disputed, but no one could deny the right of women to decorate and beautify their own homes.

Mr. Buckman read a paper on "The Decorative Treatment of Modern Subjects, as applied to Domestic and Street Architecture." The purpose of the paper, he said, was to advance the idea that subjects for decorative purposes should be selected from actual and existing life; that statement of purpose was followed by descriptions of the decorative work of the great nations of ancient times, viz., the Assyrians, Egyptians, and, greatest of all, the Greeks, showing that in addition to decoration as a simple matter of embellishment, its vital purpose was that of transmitting historical representations of the life and occupations of the people by whom the various buildings were erected. The writer then proceeded to quote from the works of eminent writers on art, Ruskin and Owen Jones, passages *à propos* to the subject, and concluded by urging those who were building great houses to give the matter consideration. "Let the art be worthy and the truth absolute, and precisely as you observe those conditions you will encourage good art, and contribute to historical fact, and so leave a record as valuable in the future as the works of those great nations of the past, and the buildings you leave to your posterity shall tell to them and succeeding generations the manner of men you were in your day in the old time before them."

After a brief discussion, the President spoke of the advantages to be derived from the Art Section, and said that its success on the present occasion would no doubt lead to its being more largely attended by artists and lovers of art next year.

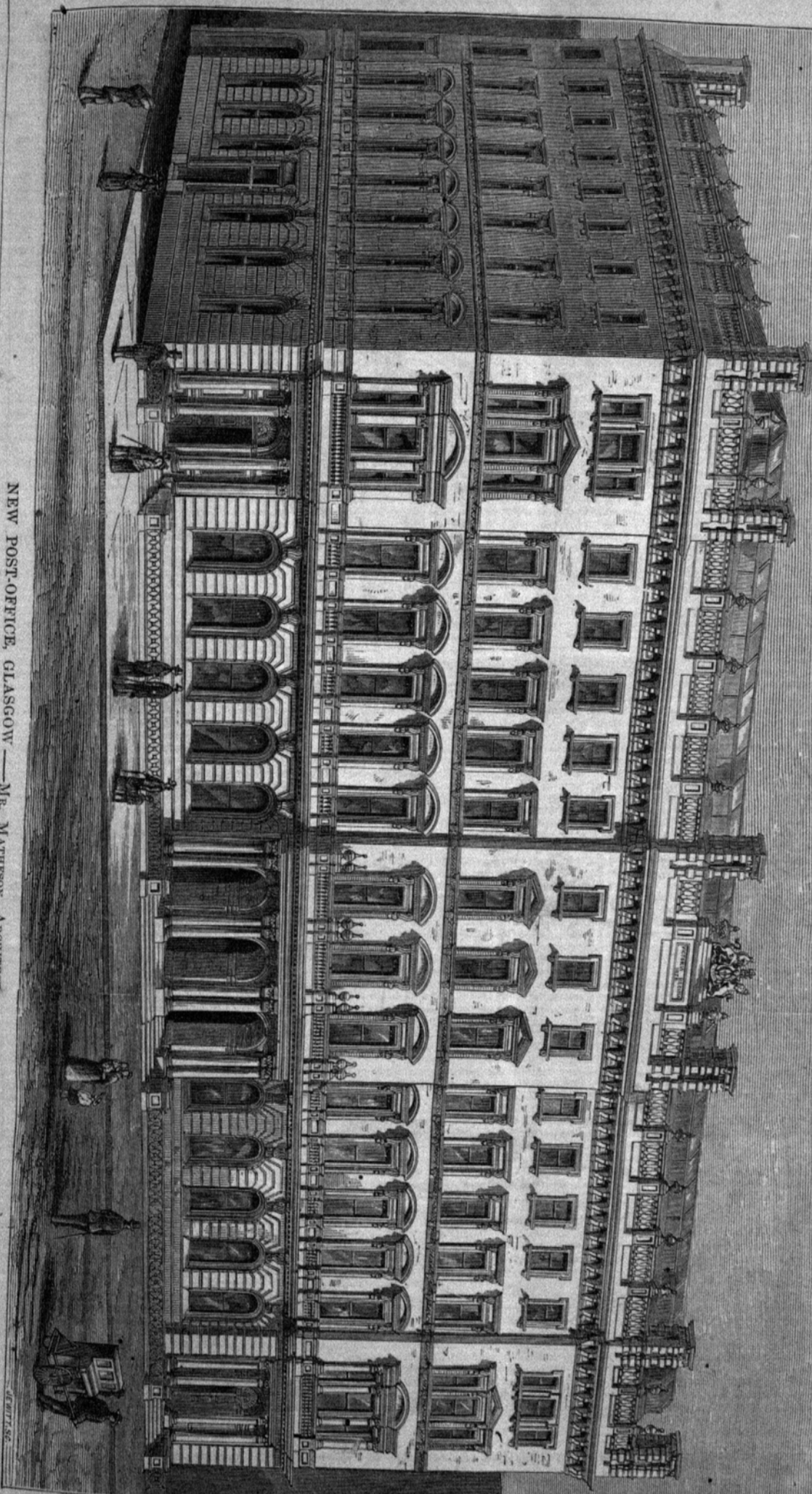
DURHAM CATHEDRAL PULPIT.

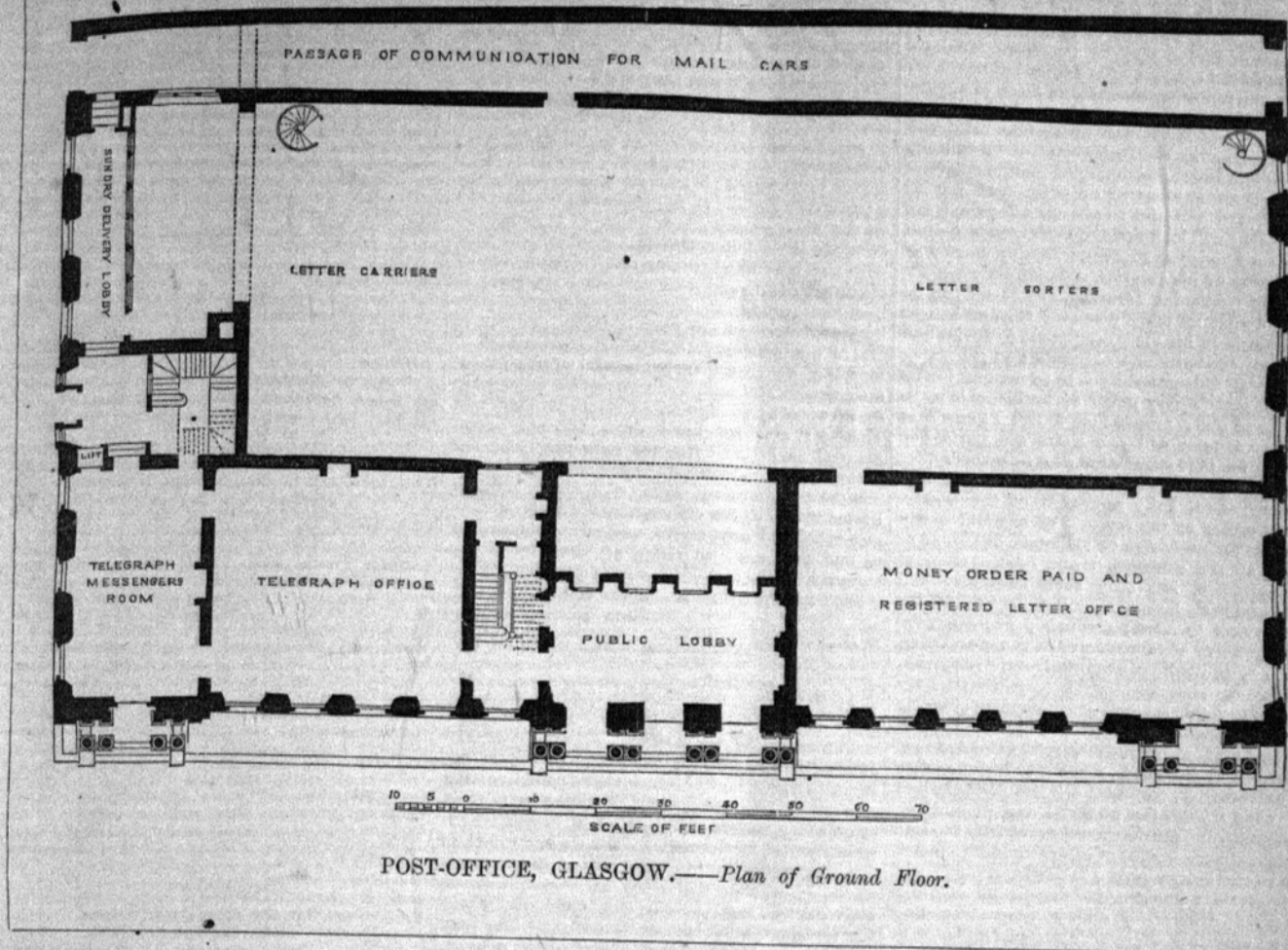
On the 18th inst. (the Feast of St. Luke) the Cathedral Church of Durham was reopened, after having been closed for some time for various works. The bishop, it may be remembered, refused to take part in the opening services owing to his belief that the money would have been better spent in relieving the spiritual destitution of poor parishes. The alterations of the interior have been going on more or less for five years, and have given rise during their progress to considerable and acrimonious discussion, both theological and architectural. If we exclude the Chapel of Nine Altars, which is of later erection, Durham may be called a Norman cathedral, and its vastness on entering strikes the worshipper as much as its height on the banks of the Wear (unequalled except in Lincoln) amazes him on first beholding the external fabric. Whether or not there should be a screen was one of the points chiefly mooted. Sir Gilbert Scott said that no cathedral suffered so much from the want of a screen as Durham, and one has been erected,



NEW PULPIT, DURHAM CATHEDRAL.—SIR G. G. SCOTT, R.A., ARCHITECT.

NEW POST-OFFICE, GLASGOW — MR. MATTHEWS, ARCHITECT.





which we shall illustrate before long. The base of the screen and pulpit, and the steps to the choir are of figured black and gold marble. Upon the base stand the arch piers of the screen, each of which is a cluster of dark marble shafts with moulded alabaster bases and bands and carved alabaster caps. Richly foliated, moulded and carved arches rise from these piers, and the whole is surmounted with a cross. The pulpit in the nave is composed of alabaster. In the upper part the shafts are grey marble, inlaid with mosaic; the panels are of dark red and green marble. In the lower part the shafts are of dark grey marble; the lions are of alabaster. Messrs. Farmer & Brindley were the carvers, and the cost is broadly spoken of as between 1,000*l.* and 2,000*l.* The pavement of the choir is of variegated marble; the choir stalls, of oak, which date from the latter part of the seventeenth century, have been advanced. The new organ, by Willis, built in halves, occupies the second arch on either side from the choir-screen. The altar-screen, of Caen stone, is of the latter part of the fourteenth century. Mr. C. Hodgson Fowler, the diocesan architect, has, we believe, assisted in the superintendence of the works.

NEW POST OFFICE, GLASGOW.

THE scant accommodation at the Post Office of Glasgow has long been a cause of complaint to those whose daily business is affected by it, and a source of little satisfaction to a city which has otherwise so much to boast of in all that relates to business and the means of transacting it with expedition and success. The first good opportunity that offered for procuring ground for a new building was taken advantage of. Some property to the east of the present postal buildings was purchased, and plans were obtained from Mr. Matheson, the architect to Her Majesty's Board of Works in Scotland, for the edifice. This when completed, and occupying not only the space that has now been cleared at the south-east corner of George-square, but the advantage in a square which is adorned by many fine structures. Some idea of the improvements which will thus be effected may be

learned from the fact that while the present Post Office covers 950 superficial yards, the new one will extend to an area of 2,500 yards, or rather more than half an acre, being bounded on the north by George-square, on the west by Hanover-street, on the east by Frederick-street, and on the south by Old Assembly-lane. Towards George-square the frontage will be 190 ft., and the width down Frederick and Hanover streets will be 120 ft. To be in harmony with the principal buildings in the vicinity, the style of architecture adopted is Italian. The principal elevation is 75 ft. high, consisting of four floors above the level of the street, having centre and end compartments, in each of which are entrances. The entrance openings of the centre and sides are arched, having the piers between faced with coupled pilasters and relieved columns, all of polished Peterhead granite, forming a portico in front of each. Along the entire front and ends the cornice of the entablature will be carried, and will support a balustrade divided with panelled pedestals. The windows on the first floor are to have moulded architraves and trusses supporting pediments, arched and pointed alternately; those of the next floor are to be similarly finished, with the exception that they will only have cornices; while the upper windows will have moulded architraves resting on projecting sills, with carved blocks underneath. At the termination of the entire elevation there will be a massive cornice, the frieze being panelled and surmounted by a balustrade divided into compartments with panelled pedestals, on which a series of ornamental vases rest. In a conspicuous position, and elevated on a pedestal, the Royal Arms are to be placed. To give some variety in the design, the side compartments are to have windows of Venetian style.

Provision is made in the basement for the accommodation of the engine-house and pneumatic apparatus, as well as for the telegraphic batteries and store. Along the back there will be a covered passage, where the cars will receive and discharge the mails. On the street or entrance floor there will be a large public lobby for posting letters, &c. Turning to the right, the postal public office will be found, while on the opposite side will be the telegraph-office. Behind

these, accommodation is provided for those engaged in sorting and delivering letters. Situated on the first floor will be the postmaster's room, the chief clerk's, accountants, and other principal offices, the rest of the offices being arranged for on the floor above. The entire area of the upper floor towards the front will be set apart as the telegraph-instrument room, which will be lighted and ventilated from the sides and roof. Some idea of the increased dimensions of the chief offices can be formed when it is stated that those of the telegraph and postal departments are to include 480 superficial yards, as compared with 220 at present, those of the letter-carriers and sorting will be almost twice as large, and the telegraph instrument room will measure 752 yards instead of 250 as at present. So as not to interfere in any way with the current business, the office will be erected in what may be termed halves. In the first instance, building operations will extend from the gable of the present edifice to Frederick-street, and then, when a transference of the whole of the departments is effected, the old office will be demolished and the new one completed. The foundation-stone was laid on Tuesday, the 17th inst., by the Prince of Wales.

WATER SUPPLY TO HOUSES.

Dr. TRIFE, Medical Officer of Health for Hackney Parish, appeared at Worship-street to support a summons taken out by him against Messrs. Jordan & Paine, builders, of Hackney, for that they, having newly erected a house known as No. 2, Ridley-road, West Hackney, had not furnished it, as regards the domestic offices, with water supply and apparatus to ensure its proper working.

Mr. Charles C. Paine appeared to the summons, which, it was stated, was taken out under the Metropolis Local Management Act, section 81, and was, so far as was known, the first case wherein the section had been put into force.

Dr. Tripe said that the house had been inhabited a month, and during the time there had been no water supply to the domestic offices, as the section required. Dr. Tripe argued that the builder was as liable to supply the proper apparatus and connexion as the landlord of an old house, who was frequently called on to effect a proper supply.

The defendant said that it was not usual until the tenant had contracted with the water company by paying the first quarter in advance.

Mr. Barstow said that the section was clear on the matter, and the Act had not been complied with. He ordered the defendant to pay a fine of 40*s.* and costs. The money was paid.

PROFESSOR HUXLEY AND HIS "HONEST BRICKLAYER."

THE following reaches us from an American architect:—Sir, I find in Professor Huxley's address to the trustees of the intended new University the following remarkable piece of advice, viz.:—"That whenever you begin to build, get an honest bricklayer, and make him build you just such rooms as you really want, and a century hence, if you have a few hundred thousand dollars you don't know what to do with, send for an architect and tell him to put up a façade," &c. Now, while I will look upon the utterances of even so great a scholar as Professor Huxley merely as a suggestion of his theories, without claiming for them any particular accuracy, yet there can be no perversion of their meaning that an honest bricklayer is in his view competent to devise and put up all the buildings adequate and necessary for a great university that is to be, and for its final and satisfactory finish an architect is to be called in to put a proper face to it. I know that Professor Huxley will not claim any particular accuracy for that suggestion of a new theory, for he evidently intended to imply that he, like everybody else, fully approved of the wisely-adopted policy of the trustees of the University not to put up expensive or elaborate buildings at present, at the conception and organisation of the institution, but only such necessary and simple accommodations as will be now (and for several years to come) absolutely necessary for the progressive advancement of the undertaking, which may gradually or eventually require proper, adequate, or even dignified accommodation for 500 or even 5,000 students. It appears singular and very astonishing that the Professor, who, in the very outset of his address, recommended that the University should, in respect to its true sense and universality, embrace all the sciences and arts—even schools for pictorial and plastic art, architecture and music, should eventually fall into the great misconception of recommending a bricklayer as the proper person to devise, arrange, and construct the numerous and important buildings for a great University, and propose the calling in of an architect afterwards to "put a façade to them." It is almost inconceivable how so learned a scholar and scientist as Professor Huxley, and one reared, brought up, and moving in and among the glories and time-honoured architectural piles in which the Old World, and particularly England, so much abounds, and a country where architecture has been fostered and nourished for centuries by the men of the highest position and talent, and has given such able men as Sir Christopher Wren, Jones, Gwilt, Chambers, Barry, and most of the leading men in the art, should show so little acquaintance with, or so much indifference to, the requirements and duties of an architect as to conceive that the latter's business is simply to put up a façade to the bare walls erected by a bricklayer! Architects, both in America and elsewhere, may not always be fully what the name implies, but our conception, as well as that of better informed men in all enlightened countries, has always been that the architect is what the Greek word *arkos* implies, "chief of the work." Again, to build, from the Anglo-Saxon, "*byldan*," to establish, to make firm and fast, but also in the æsthetic sense the designer, deviser, and embellisher of a structure which he fits not only in its interior for the purposes for which it is intended, but endows it with solidity, harmony, dignity, thought, and expression in all its parts; for, while economy, convenience, and proper solidity of construction are the fundamental principles in architecture, it is not the nature of this art to confine itself exclusively on utilitarian points, but the true artistic mind seeks instinctively to adorn what it produces, and we think with Professor Huxley, where he says in his address, "All knowledge is good. It is impossible to say that fragments of knowledge, however insignificant or remote, may not some day be turned to account"; and with Sir Henry Wotton's remark, that "architecture can want no commendation where there are noble men or noble minds." It matters not how simple or economically the contemplated and numerous buildings for a university, or any other purpose, may be constructed, whether of brick or wood, but to be well devised and studied to answer their proper purpose—to erect great lecture-rooms, laboratories, museums, examination, and memorial halls, and their necessary appendices and service-rooms properly proportioned, arranged, lighted, warmed, and ventilated, even without any façade, requires surely the mind and skill

of an architect, beyond the mere hands of a bricklayer, whether the latter be honest or not, and we were in hopes that, at least, England and her great scholars and scientists had gotten beyond our crude and original American idea of an architect, which used to be, at their first appearance, "that they were a little better sort of carpenter"; but now it seems we have advanced so far in the profession that even some of our English friends believe us to be "a little better kind of draughtsmen," who put up a façade to an honest bricklayer's bare walls, like a paper-hanger sticks up his wares by the yard on the bare whitewashed walls of a room "to decorate it." I do not wish to cavil or find fault with the individual opinion of Professor Huxley about architects and their art, but I am sorry to hear such crude and erroneous opinions so publicly expressed at the very opening address of one of our contemplated highest institutions of learning, where the very highest cultivation of all sciences and arts is otherwise so favourably dwelt upon by so high an authority as Professor Huxley; and we have even of late commenced to flatter ourselves somewhat with the idea that the productions of some of our architects compare favourably even with many of the better works in the old countries. But we shall nevertheless study, strive, and toil in the calling of our profession to reach at least up to an equality with the skill and eminence of an "honest bricklayer" in the art of building.

JOHN R. NIERNSEE.

Baltimore.

THE CARPENTERS AND JOINERS OF SCOTLAND.

THE report of the Associated Carpenters and Joiners of Scotland for the month of September contains a good deal of information, which, coming so close on the recent strike in Glasgow, is of an interesting nature. More than a fourth of the whole report is devoted to the Glasgow strike, and the figures given of the cost of the struggle to the union bear out what has been stated in the *Scotsman* and in our own columns. Since the termination of the strike 643 new members have been enrolled in the Glasgow district alone, while over the whole of Scotland the new accessions to the ranks of unionism number about 150 more.

It may be remembered that a resolution was unanimously adopted previously to the settlement of the dispute that "nobs" should be charged 1l. of entrance-money before being admitted members of the union; and, further, that no society-man should work alongside any "nob" until he had joined the union. This left no alternative, and in several instances the men were compelled to pay the fine. To what extent this has been done is evident from the report. In the central district the fines amount to 10l. 13s. 9d.,—the 1l. probably being modified to a few shillings,—Cowcaddens, 4l.; Plantation, 17s. 6d.; South, 4l. 3s. 6d.; Townhead, 1l. 6s. 6d., to which is added "fine from an employer, 3l.;" West, 10s.; Govan, 2s.; and Partick, 2l. 7s. 6d.

Coming to the sum paid in the different districts for strike allowance, the central branch heads the list with 878l. 3s. 14d., Townhead being next with 567l. 12s. 74d. The total expenditure is given at 3,565l. 11s. 8d., but to this has to be added about 400l. expended otherwise than on members of the union. While on June 2nd the number of men on strike was 1,313, on July 7th it had decreased to 412, and on August 4th the number was 356, this being further reduced on September 1st to 168. The report concludes with two significant paragraphs, one from the Aberdeen branch with reference to compulsory membership, and the other a Glasgow "comment." The Aberdeen joiners say:—

"While we would be disposed to allow some latitude to our brethren in Glasgow in their present circumstances, yet from the statements in last month's report, and also in the public prints, we think they are adopting a course which has never received the sanction of the Association. We are as anxious as any to see all the members of the trade in Glasgow and elsewhere connected with the Association, provided they are persuaded it is their interest and their duty to become members; but a forced membership is not desirable, and it appears to us that our Glasgow brethren, in refusing to work along with non-members, are adopting a course which does not allow freedom of opinion, and is calculated to create and strengthen prejudices already strong enough against such combinations as ours, and it is a course which has certainly never been sanctioned by the Association."

Then follows the "comment":—

"We have had occasion repeatedly to request our members not to heed the statements in the newspapers relative to our trade movements or the business of the Association. The paragraphs are generally of a hostile character, and often twist and mangle facts in such a way

that readers cannot miss being deceived. We deem it necessary to direct the attention of our Aberdeen friends to Rule XVII. sec. 1, and they will there find authority for all and more than they complain of. Were we inclined to open up or carry on a controversy as to whether we should compel those who are blind to their own and their trade interests to become members, we are confident that we would be able to show that our duty and interest both lie in that direction. We have had to pay sweetly for the freedom of opinion we allowed to non-members, and are now resolved that they shall pay at least some of what we have lost by our mistaken kindness to them. How often have we had to go begging for non-members? How often have they asked what the society is to do for them? How much money have they caused us to lose in the recent and previous strikes? Let our Aberdeen friends weigh the facts (they know them), and we are sure that their sympathy is at present extended to those who do not deserve it."

NEW HOSPITALS.

Lewes.—A new hospital for infectious diseases, which has just been built on the Offham-road, at Lewes, has been inspected by the Medical Officer of Health for East Sussex, Dr. Fussell. The hospital, which is commodious rather than showy, consists of three detached buildings, furnished with sanitary and ventilating appliances. It has been erected by Mr. H. Card under a contract with the sanitary authorities of Lewes and the Cliffe. The architect is Mr. Ratley, of London. The hospital is surrounded with grounds which are to be suitably laid out.

London.—The new building for the Central London Throat and Ear Hospital, Gray's-inn-road, has been completed. The foundation-stones of the building was laid, it will be remembered, by Madame Adelina Patti, about a year ago. Externally, the hospital is simple, but substantial. The upper portion is of plain brick, with Portland stone dressings. The lower portion is relieved by glazed tiles. All the passages, waiting, consulting, and operating rooms have a dado of 4 ft. 6 in. high, of blue and white glazed tiles, of Dutch pattern. These tiles were manufactured in the South of France, and are said to be about one-third the cost of the English make. They have been supplied by Messrs. Trollope. The walls above are finished with a permanent coloured cement, after a new process of the architect, Mr. Ernest Turner. The doors and window fittings are, for the most part, of oak.

Wakefield.—The Committee of the Clayton Hospital and Wakefield General Dispensary have accepted tenders for the various works required in connexion with the proposed new hospital. Some time ago the committee purchased for 4,500l. about two acres of land near St. John's, belonging to Mr. R. B. Mackie, and upon this land is intended to be built a new hospital, at a cost of nearly 14,000l., exclusive of the site. The architect is Mr. Bakewell, of Leeds.

Warrington.—The new hospital and dispensary in Heath-lane, Warrington, overlooking Bank Park, is nearly completed. The architects are Messrs. John Pierpoint & Son, whose designs were selected in limited competition. The style is Gothic, and the material is pressed brick, with Cefn stone dressings. The most noticeable exterior feature is the clock tower, which will be visible from many parts of the town. The peculiar shape of the land has had much to do with the form of the building. By adopting what is known as the "pavilion" plan for the hospital, the other portions fell into their proper places better than they otherwise would have done. The axes of the wards run as nearly as possible north and south, so that the sun may shine in the rooms from rising to setting, on one side or the other. The walls of the wards are one brick and a half thick, with a 2-in. cavity, and the inside of the walls is plastered with Parian cement. The floors are laid with oak rebated boards, which are to be kept beeswaxed. The cubical space allowed for each patient in the wards, supposing all the beds to be occupied, will be about 1,339 ft. The windows in all the wards have been divided into three parts, the top portion being on a swivel, and the lower portions hung with the ordinary cords and weights. In addition to this, what is known as "Sheringham's ventilator" is used between the windows. The wards will be warmed by means of open fire-places. The dispensary is approached by a distinct entrance; and has suitable accommodation for the outdoor patients. There are also an accident ward and an operating ward, the latter lighted from the top. Adjoining the operating ward is the special ward for special cases; and a notable feature in this ward are the means adopted for clearing the room of all foul air or bad smells after a "dressing." A cold-air flue is brought from the outside to a valve under the centre of the beds, upon opening which, and the flaps to ventilators in the ceiling, the room will be immediately

cleared. In addition to these wards, there are the resident-surgeon's house, with library, &c., and apartments for the nurses and servants. There is a mortuary, the entrance to which is from the yard. The cost of the whole of the buildings, exclusive of furniture, will be about 7,000l.—A new infectious diseases hospital is also in course of erection at Warrington. For some time past it has been felt by the Corporation that there was a great want in the town of an hospital for diseases of an infectious character, and that if any epidemic were to break out in the town, the consequences, owing to this want of proper isolated accommodation, might be very serious indeed. The matter was taken up by the Sanitary Committee, and plans obtained from the borough surveyor, Mr. Yawser, for the erection of a suitable building, and one capable of meeting all the demands of a rapidly-growing town. The building is just outside the boundary-wall of the Union Workhouse, and will consist of six separate blocks one story high, communication being obtained between each two blocks by means of covered corridors. Each of these blocks will contain two-wards, thus giving a total of twelve, each ward containing six beds. The room for the nurse is situated between the two wards, so that from windows on each side of her room she can constantly have the oversight of both wards. The wards are each 36 ft. by 24 ft., and each is fitted up with bath, closet, stoves, &c., in order to make each department thoroughly self-contained. The building will be of brick. Besides these blocks, there will be the lodge for the keeper, a mortuary, disinfecting house, laundry, coach-house, &c. It is not intended to complete the whole of the buildings at present, one of the blocks only being proceeded with, with the necessary porter's lodge, outbuildings, &c., and the total amount of the contracts for this work reaches 2,200l. The remaining blocks will be built from time to time as they are required, and it is estimated that the total cost of the whole when completed will be about 6,000l.

SCHOOLS OF ART.

Lewes.—The distribution of prizes at the Lewes School of Science and Art took place on the 10th inst., the Right Hon. the Speaker in the chair. The report, read by the secretary (the Rev. P. de Putron), recorded much useful work. The income for the year, including fees for the art school, day and evening classes, was 132l.; from science class, 5l. 15s.; grant for art department, 30l.; and grant for science department, 15l.; making a total of 182l. 15s.; against which were disbursements amounting to 204l. 10s. 1d. A deficit of 21l. 15s. 1d. was thus shown.

Henley-on-Thames.—In connexion with the distribution of prizes at the Henley-on-Thames School of Art, the other day, an art exhibition was held. Sir Robert Phillimore distributed the prizes. The report of the hon. secretary (Mr. W. Wing) stated that the total number of students attending the class has been:—Afternoon, 22; evening, 48. Average attendance:—Afternoon, 7.5; evening, 27.6. Mr. Havell having resigned his position as master of the school in May last, had been succeeded by Mr. Randall. The report of the Government Inspector and the list of students successful at the May examination are in every respect satisfactory. The local prizes were adjudged by Mr. W. Scott Champion, the competition being close.

Godalming.—The Godalming Art Classes have now been established three years, and are reported to be doing a very successful work. The number of students attending during the past year was, afternoon class, 32; evening, 64. The receipts were 188l. 12s., which include subscriptions to the amount of 44l. 18s. 6d., and Government grant, 24l. 11s.; and the expenditure, was 156l. 4s. 8d.; thus leaving a balance due of 17l. 12s. 8d. The teacher of the classes is Mr. W. T. Roberts, certificated teacher, South Kensington. The distribution of prizes and certificates to the successful students in the Government examination took place on the 9th inst., when Viscount Midleton presided.

Birkenhead.—The annual distribution of prizes at the Birkenhead School of Art took place last week in the new hall which has recently been opened. Mr. Laird presided, and congratulated the friends of the school on the completion of the new hall, for which they were indebted to the liberality of Mr. MacIver, who had placed 1,000l. in the hands of the committee for that purpose. Mr. Bentley, the master, read

his report, from which it appeared that there were 202 students in the evening classes, and 64 in those held in the morning. In the late examinations 148 candidates had submitted 257 exercises, of which 31 were marked "excellent," and 112 "good." A total of 2,096 drawings, &c., had been forwarded to South Kensington, and from those twenty students had received prizes, being double the number of last year.

Walsall.—The report of the head-master of the Walsall School of Art, just published, shows that during the year the number of students increased from eighty-three to nine-seventy, and the number of pupils from one class of nineteen to two of seventy and eighty respectively. The works of ten students in the elementary section and two in the advanced received special notice as satisfactory. Fourteen art certificates with two prizes, two third-grade prizes, and one national book prize, have been awarded by the Department. The grants for science and art amounted to 68l. 9s., or about 20l. more than last year.

Leith.—The general meeting of the Leith Science and Art School was held on the 17th inst. The annual report showed that the numbers on the roll during the session were:—Machine construction, sixty-five; mathematics, sixty-seven; steam and the steam-engine, sixty-five. In the first department, twenty-five pupils had presented themselves for examination; in the second, eight; and in the third, twenty-six. The result had been that thirteen pupils had gained Queen's prizes; thirteen, first-class certificates; and seventeen, second-class certificates; and a Government grant of 42l. secured. The financial condition of the school is satisfactory.

Selby.—The annual meeting of the Selby School of Art was held on the 19th inst., when Sir Henry Cole, K.C.B., presided, and distributed the prizes. Sir Henry, in opening the proceedings, observed that if the school at Selby had been simply content to stand upon the average, they would have got by the system of payment by results from the Government about 36l. for the last year. But the fact was he saw from the last report of the Department at South Kensington, that the school gained 58l. for the year. That may be taken as a satisfactory sign that the school was working well in comparison with others. These results had been obtained in spite of the very worst premises for a school of art that he had ever seen in his life.

Mansfield.—The annual distribution of prizes to the successful students of the Mansfield School of Art and Science took place on the 26th ult. Mr. J. S. Tyrer, head master of the school, read his annual report, from which it appeared that sixty-two students had been entered during the year, fourteen attending the morning and forty-eight in the evening class. This number of admissions, though six below those of last year, was still above the average for the last four years. Of the forty-eight students attending the evening class, thirty-six were above sixteen years of age. Only ten failed to make the necessary twenty attendances. At the Government April examinations twelve highest grade prizes were awarded to students of this school, against five, the highest number previously obtained. In addition to these, seven second grade prizes, one Queen's prize, fourteen certificates for free-hand and model drawing, and eight for machine drawing, were awarded at the Government examinations at South Kensington last April.

Hanley.—The annual meeting of the Hanley School of Art was held on the 18th inst., at the Town-hall. The report of the head master (Mr. A. A. Bradbury) stated that although there was a slight decrease in the number of students who attended the school in the year just ended, the works submitted for prizes and payments in April last numbered 1,576, being an increase on any previous year. An additional proof of the diligence of the students as a body last year is found in the increase in the number of those who executed sufficient satisfactory studies to be worthy of submitting for examination, for whilst in 1875 the works of 159 students were submitted, in the year just ended the works of 164 students were sent to South Kensington for examination. Since the last report the first of the prizes offered for design each year by the Worshipful Company of Plasterers, and open to competition to students in the entire kingdom, has been won by Mr. Joseph Ellis, lately of this school, for a design for a bracket. One of the students of the school has also obtained a National Scholarship at South Kensington of the value of 52l. per annum.

LIABILITY OF LOCAL BOARDS.

WIGRAM V. SOUTHEAST LOCAL BOARD.

This was an action (heard in the Rochford County Court on the 10th inst., before Mr. J. T. Abdy, judge) by which the Rev. S. R. Wigram, vicar of Prittlewell, sought to recover from the Southend Board of Health 3l. 2s. 6d. for damage done to his carriage, and for cab hire during the time the repairs were going on, such damage being alleged to arise from the neglect of the defendants to keep the road and sewers in proper repair.

A previous action was brought at the June Court, but his Honour then consulted the plaintiff, on the ground that the Board as surveyors of the highway and as public servants were not amenable to action, but that the mode of procedure would be by indictment. At the August Court application was made on behalf of plaintiff for a new trial, and in support of this application citation was made of the action "White v. The Hindley Board of Health," in which it was laid down by Mr. Justice Blackburn that in their joint capacity as owners of sewers the Local Authority was liable to action for damage resulting from neglect in respect to the sewers, and on the strength of that case his Honour granted the new trial, and the case was now commenced *de novo*.

It appeared that on the 25th of November last year a traction engine passed along the High-street and broke through the sewer in several places. Shortly afterwards plaintiff's coachman was driving towards the station when the horse suddenly fell through a hole on the west side of the road, and it turned out that this hole on the surface was owing to the sewer being broken. It was alleged that when this sewer was constructed, instead of the earth being put back and properly rammed, a great portion of it was never put back, and that was the cause of the accident. In the case "White v. The Hindley Board of Guardians," Mr. Justice Blackburn held that the Board was liable for the damages sustained through a defective grid over a shaft leading down to the sewer. It was contended that the Board were guilty of gross negligence in not stopping the traffic along this road until the damage had been repaired.

Witnesses having been called on behalf of the plaintiff, it was contended, for the defence, that the sewer was constructed five years prior to the accident by Mr. Marshall, who contracted to do the work. It was impossible to put in as much earth as was taken from the excavation, and from time to time as it subsided it was the practice to fill up the trench until it became quite solid, but in some cases, as in this, in dry weather the crust of the road was so hardened that while the work of subsidence went on underneath, the surface of the road remained perfect and formed an arch, but it was impossible to detect this until the surface was broken through. In this case the Board did properly in making a contract. Mr. Marshall was the contractor, had done the work, and had been gone from the district six years, and for five years before the accident the road had been used, and the winter before the road had been thoroughly repaired, and received a heavy coat of metal. It was further contended on behalf of the defendant that in the case of "Hammond v. The Vestry of St. Pancras" it was ruled that in the absence of negligence the vestry was not responsible for injury arising from the disruption of the sewer, but in the case "Foreman v. The Mayor of Canterbury" there was negligence in putting the stones by the side of the road, and in the case of "White v. Hindley Local Board" the grid was known to have been broken six months.

Mr. W. Waterhouse, surveyor to the Southend Local Board, said that as soon as he heard of the breakage he went to the spot, set a man to keep anything from passing there, went to the police-station for a constable to keep people off, and as soon as possible procured ropes and stretched them across the road to prevent traffic, and he set men to work to repair the damage, which was done the same afternoon; he did not hear of the accident to plaintiff's carriage until returning from the police-station, and not an hour elapsed from the time of his hearing of the breakage to his hearing of the accident; he knew nothing of the cavity in the road before, and there was no means of knowing it.

His Honour here stopped the case, and said in his opinion there had been no negligence proved on the part of the Board, because as soon as the damage to the road was ascertained the surveyor did all he could to remedy it and to prevent accidents, and it had been proved he could not know the state of the road before the traction engine broke through and revealed it. He therefore gave judgment for the defendants with costs, but said he would give plaintiff a case for the court above if he desired it.

DAMAGES FOR DELAY.

ASHTON AND ANOTHER V. GIBBS.

This was an action in the City of London Court, before Mr. Commissioner Kerr, to recover the sum of 7l. 3s. for goods sold. The defendant pleaded a counter claim for 50l. damages against the plaintiff.

It appeared that the defendant, a civil engineer, of 2, Westminster-chambers, Victoria-street (who is engaged in large building operations at West Kensington), entered into a contract with the plaintiffs, Messrs. Ashton & Green, of 14 and 15, Bury-street, St. Mary-axe, slate and general merchants, to slate two villas situate on The Cedars Estate, Hammersmith-road. The plaintiffs' claim was for the balance of an account for work done; but the defendant contended that in consequence of its not having been done in time, the rain and snow came through the roof, and so damaged the interior of the building, that he had lost in the maximum 31l., although he now only claimed 50l., for the purpose of giving the County Court jurisdiction.

The defendant's counsel said he would not contend against the plaintiffs' claim for the work done, but would rely upon the counter-claim, and upon that the defendant and several witnesses were called, and proved that the plaintiffs had contracted to do the work within a week, and had been paid 20l. in advance upon their estimate of 24l., and that they had neglected the work, and did not complete it for upwards of a month after the contract time had expired, in consequence of which the rain and