

consequence, the Sikh soldiery, in the opinion of many who are intimately acquainted with that people, are fast losing their special characteristics as a separate race, and are becoming, so to speak, citizens of the world. The result may be, that if, on the recurrence of such an emergency, we have occasion again to invoke their help, we shall find their sympathies transferred from our side to that of their brother-soldiers. If the Bengal Army has to be put down a second time, it will be an army representing every race of people from the Ganges to the Indus, and there will be no second Sikh army to look to for aid against it. Not only will the lesson to be learnt from 1857 have been all thrown away: we shall have artificially created a second difficulty, of precisely the same kind, without reserving the means of overcoming it.

It may be said that these are the views of an alarmist; that the large force of Europeans which now garrisons the country, and our improved military arrangements, render our position perfectly secure; and that we could now put down any mutiny by sheer force, without being called on to pit one class of native troops against another. As regards the immediate present this may perhaps be admitted. Almost the whole artillery of the country is now manned by Europeans, and all the strong places are in our hands. But the tendency of things is towards a constant reduction of the British troops,* and the pressure of an European war may at any time bring them down below the point of safety. Surely now is the time, when the events of 1857 are still fresh in the memory, to establish our military system on a basis of safety, and deliberately to prepare an insurance against the inevitable time when the State shall be again lulled into a treacherous feeling of security. And the first measure called for in this direction is the subdivision of the Bengal Army into two smaller bodies. Had this been made when the

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Impolicy of
thus fusing
the two
races.

A return
to former
separation
advocated.

* Since the above was written the European force has been diminished by two regiments of dragoons and two battalions of foot.

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The change
was not
made
designedly,
but by
accident.

Punjab was conquered, the mutiny would possibly never have occurred, at any rate it would have been suppressed with comparative ease. But the administration of that day had not the excuse of our experience.

It may strengthen the argument here put forward, to point out that, in justification of maintaining the existing state of things, there is not even the plea that it has been intentionally brought about. The present organisation of the Bengal Army is purely accidental. The origin of the Punjab levies has already been explained, the only practical limit placed on which, at the time when they were raised, was the power of finding arms and officers. In addition to these, very numerous Hindostanee levies were raised all over the reconquered provinces; and the whole, together with the few regiments that remained faithful, formed at the conclusion of the war almost as large an army as that which it succeeded. Considerations of policy, and the necessity for holding the lately-disturbed districts in strength, required that this force should be maintained intact for some time after the cessation of actual hostilities; but in 1861 financial pressure demanded a sudden and rapid reduction, and this was carried out, not upon any definite policy, but by the retention of the particular battalions which had distinguished themselves on service, or were otherwise conspicuous for efficiency. These effects were, no doubt, due mainly to the particular officers who commanded them; thus the present composition of the army is quite accidental, and has not been brought about with any view to establishing a balance of creeds or races.

Unpopularity of distant service with native troops in peace-time,

Another strong argument in favour of a division of the Bengal Army, is the extreme unpopularity with the native of a military service which involves tours of duty, during *peace-time*, far away from his home. To the Punjabee the climate of Lower Bengal is as unsuitable as is that of the Punjab to the Bengalee, and both to the European; and be it remembered, that while the sphere of service has

been thus extended, the pay and privileges of the sepoy remain the same. On this head may be given the opinion of a Committee which reported on the subject in 1858, consisting of Sir John [now Lord] Lawrence, Sir Neville Chamberlain, and the late Sir Herbert Edwardes, than whom no higher authorities can be quoted, extracted from the Appendix of the Report of the Royal Commission of 1859 on the Organisation of the Indian Army:—

‘After mature consideration, and with reference to the events of the past year, we come decidedly to the conclusion, that regiments of native infantry should be provincial in their composition and ordinary sphere of service. As we cannot do without a large native army in India, our main object is to make that army safe; and next to the grand counterpoise of a sufficient European force, comes the counterpoise of natives against natives. At first sight it might be thought that the best way to secure this would be to mix up all the available military races of India in each and every regiment, and to make them all “general service” corps. But excellent as this theory seems, it does not bear the test of practice. It is found that different races mixed together do not long preserve their distinctiveness; their corners and angles, and feelings and prejudices, get rubbed off, till at last they assimilate, and the object of their association, to a considerable extent is lost.

‘To preserve that distinctiveness which is so valuable, and which, while it lasts, makes the Mahomedan of one country despise, fear, or dislike the Mahomedan of another, corps should in future be provincial, and adhere to the geographical limits within which differences and rivalries are strongly marked. Let all races, Hindoo or Mahomedan, of one province be enlisted in one regiment, and no others; and having thus created distinctive regiments, let us keep them so against the hour of need, by confining the circle of their ordinary service to the limits of their

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own province, and only marching them on emergency into other parts of the empire, with which they will then be found to have little sympathy. By the system thus indicated, two great evils are avoided: firstly, that community of feeling throughout the native army, and that mischievous political activity and intrigue which results from association with other races, and travel in other Indian provinces; and, secondly, that thorough discontent and alienation from the service, which has undoubtedly sprung up since extended conquest has carried our Hindostanee soldiers so far from their homes in India Proper. There can be no question that a contented servant is better than a discontented one. Unfortunately, we have tried too much, hitherto, to purchase the contentment of our native armies by increased pay, batta, &c.; this has not answered its purpose, and has produced many evils. It has enriched the sepoys, but not satisfied them. Nothing can reconcile natives to long absence from their homes, where they leave their wives and lands. The sepoys felt they were being coaxed into foreign service, and got both angry and insolent with a sense of power. We believe that what is called "general service" has been prominent among the causes which undermined our once faithful native army. If then, in future, we keep our regiments moving ordinarily in a circle about their homes, we shall add greatly to their real happiness, and consequently their loyalty, and be able to get rid of all mischievous increases of pay. Fewer men will also suffice, for the furloughs will be shorter, and, in fact, we believe that the service will thus be rendered more safe, more economical, and more popular.'

another
reason for
localising
them.

It seems needless to add anything to this evidence. The unpopularity into which the service has fallen, from the cause here dwelt on, has not perhaps reached the point at which a difficulty is felt in obtaining recruits, but that it is extensively felt no one conversant with

the subject can doubt. There may be some persons, indeed, who will say that soldiers who do not like going where they are sent are not worth having. This is not the view taken, be it observed, with regard to European troops; it is always assumed that they prefer good stations to bad. But, however that may be, the point at issue is not as to the quality of the soldier, but whether, a certain description of soldier being required, the requirements of the service should not be adapted to secure him. At any rate the objection will probably not be deemed to deserve a serious reply. There is, however, one that may be raised—and, so far as I am aware, it is the only one that has any weight—namely, that if one-half of the existing Bengal Army be cut off permanently from the north-west frontier, which has of late years as the scene of the principal campaigns been the great practical military school for Indian troops, the quality of that portion would be in danger of deteriorating. The separation here advocated need not, however, be maintained beyond time of peace. It would still be perfectly practicable to employ portions of both armies on military operations beyond the frontier, or in any part of India. Under the excitement of active service, the dislike of native soldiers to leaving their own country disappears, and in such times there is no danger of bringing the different military bodies into contact. It is during the tedious monotony of cantonment life that the sepoy sickens of exile, while it is during idleness that mischief is hatched, when large bodies of mercenary troops are brought together. Divide the Bengal Army, and danger from this cause is reduced to a minimum. Each army will then be available as a means of coercing the other, and a very much smaller body of European troops than now garrisons the country would suffice to turn the scale.

This may be a hard way of looking at the subject; but sentiment had a large share in bringing about the events

Localisa-
tion of

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native
troops
would
admit of
their being
properly
armed.

of 1857, and would be quite out of place now. **More-** over the policy here advocated is consistent with a much fairer treatment of the native army in one very important respect than it now receives. The native infantry throughout India is still armed with the old smooth-bore musket, confessedly because it is thought unsafe to give it a more efficient weapon. Unfortunately, foes as well as friends benefit from this precaution, which, if logically carried out, should limit the sepoys to the use of bows and arrows. Were each army kept down to moderate dimensions, and confined to its own recruiting-ground, a source of danger now very palpable would be removed, and it would become practicable without excess of rashness, to extend to the Indian Army the appliances of modern military art. Until this is done, the efficiency of the native army for offensive purposes is of course excessively diminished, although the cost of transporting them beyond sea is no way lessened; while to place troops armed with the old musket in line with British battalions carrying the breech-loading rifle, obviously places both officers and men at an extreme and unfair disadvantage.

Bengal
Army
should
be divided
into two,
composed
respec-
tively of
the Hin-
dostanee

and Pun-
jabee regi-
ments now
forming it.

The present state of the Bengal Army fortunately offers very favourable conditions for the proposed partition. Of the forty-five regiments of the line, twenty-eight* are composed mainly of Hindostanees recruited east of Delhi, and, with the four existing regiments of Goorkhas, who form an entirely distinct class, would naturally belong to the Eastern Army, which would thus contain thirty-two battalions (or eight regiments) of infantry. The second, or Northern Army, would be formed from the remaining seventeen regiments of the line,† which consist of Sikh regiments of the old Indian army and Punjab levies raised in 1857, together with

* Viz. the 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 16th, 17th, 18th, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, and 44th.

† Viz. the 14th, 15th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, and 45th.

the present. Punjab Irregular Force: It would therefore comprise :—

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	Battalions.
Punjabee regiments of Bengal Army . . .	17
Punjab Frontier Force, viz.	
Punjab Infantry	6
Extra Goorkha regiment	1
Regiments of Sikh local infantry	4
Total	28

Giving seven regiments of the proposed new organisation, all composed of Punjabees with the exception of the Goorkha battalion. This would leave the infantry of the Guides to be supplied with officers specially appointed, as at present.

The cavalry of the Bengal Army admits of exact division into two equal parts. Of the nineteen regiments of that branch, twelve* are Hindostanee regiments, and would be transferred to the Eastern Army; the other seven,† with the five of the Punjab Force, were raised in that country, and would belong to the Northern Army. The Guide Cavalry would be an extra corps, like the infantry.

The danger inherent in a mercenary army of foreigners would be still further reduced if, besides making a division of this kind, a definitive system of local recruiting were established. The basis for this already exists, since all the new regiments which date from 1857 were raised each in one spot. But this isolation of classes in separate regiments has not been persisted in; the tendency has been rather to fuse the different elements in each regiment, and make the army homogeneous—a plan which experience has shown tends entirely to nullify the advantages to be gained from the opposition of sect and race, if properly made use of. Shortly before the mutiny, Sikhs were admitted into the Bengal Army to the extent of eight per cent. of the strength of each regiment; but

Recruiting
should be
localised
throughout
whole
army.

* 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 14th, 16th, 17th, and 18th.

† 9th, 10th, 11th, 12th, 13th, 15th, and 19th.

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although they took no active share in the agitation which brought about the mutiny, their individuality was lost, an opposing element to it; and while the Punjabees, a nation, co-operated with enthusiasm against the rebel army, the Sikhs scattered throughout its ranks were more of them carried away by the contagion of regimental fellowship. Every consideration therefore of experience and policy seems to point to the segregation and localisation of our native troops. Not only should each of the native armies be kept within moderate limits, and recruited entirely within its own territories, but individual regiments also should be localised as far as possible, and separation carried out of castes and religions in the different regiments, or at any rate in the different battalions. If all this be persisted in, and if commanding-officers are left in possession of extensive powers of reward and punishment—the tendency inherent in all central departments to interference and over-centralisation being steadily repressed,—then the native army will afford itself an effective machine for the maintenance of discipline, and the supremacy of the British power.

CHAPTER XVII.

NATIVE OFFICERS.

THE reconstruction of the Bengal Army, which has been advocated in the preceding chapter, is proposed as a measure of precaution, and recommends itself by that feeling of distrust with which an alien government must necessarily regard a mercenary army. But while a wise administration will not neglect, when opportunity offers, and before the impression made by late events has grown faint, to ensure itself, as far as the exercise of foresight can do, against the recurrence of those disasters, by rendering a successful mutiny impossible,—it will not the less endeavour to enlist the better feelings of human nature on its side, and to place its military service on such a footing that the soldier may have a direct interest in the maintenance of our power, and not be retained in obedience merely by the fear of consequences. In this respect our military policy has surely failed, equally with our civil policy. Not that the mass of the soldiery has been treated with too little consideration. The Indian Army is probably the only army in the world the soldiers of which are better off than their brethren in civil life, and for which volunteers are always forthcoming to any extent that may be needed. But it offers no career to an ambitious man, or to a man of rank. It offers not even a position of respectability.

Every regiment has, indeed, a complement of so-called commissioned native officers; but with the receipt of a commission signed by the Governor-General and Council, all resemblance ceases to the office, as it is understood in

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Defects of
present
system.
All pro-
motion
denied to
deserving
natives.

Rank of
native
officers
now merely
nominal.

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Change
advocated
on this
head;

to be
gradually
carried out.

every other army. Not only are these commissions bestowed wholly on the non-commissioned officers, so that commissions are only to be got by entering the ranks; they confer no social advancement or change in the soldier's way of life. A non-commissioned officer is superior to a private sepoy, and a commissioned to a non-commissioned officer; but a European sergeant when attached to a native regiment is superior to both, and there is an immeasurable distance between the oldest subahdar and the youngest subaltern. The native officers live in the lines among the men, associating with them practically on terms of familiar equality, and in all essential respects they are less a distinct class than the non-commissioned officers of European troops are from the private soldiers. What, then, those who share the views here expressed desire to see introduced, is the advancement of distinguished native soldiers to a position of distinctly-marked superiority above the rest of the army, on a footing of professional equality with European officers; and that Indians of good family who are otherwise qualified may be eligible for admission at once to the commissioned ranks; so that the reproach may be removed from our administration, that all but the lowest walks in it, both in civil and military life, are closed to the people of the country.

It is hardly necessary to add that the advocates of such a policy do not propose any sudden or sweeping measure. A radical change of this sort should be made slowly and with caution. The people of India can only be trained gradually to the new responsibilities which may be placed upon them; but the narrowness of the limits which must necessarily bound such a scheme on its first introduction, cannot be taken as the measure of its justice or necessity. In the beginning, no doubt, all that could be done is the appointment of a native, here and there, to the effective establishment of the officers of a regiment; but, in course of time, it might be ex-

pected that some regiments would be wholly officered in this way; nor does there appear to be any reason why the advancement of natives should stop at this point. This speculation however need not be pursued yet; it will be sufficient for the present generation to make a beginning. Let me add, in order to guard against being misunderstood, that it is not contemplated that Europeans should be called on to serve under natives. To do so would be to create a perfectly needless difficulty.

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Two objections will readily occur to the reader as likely to be advanced against this scheme. It will be said that natives are deficient in the needful capacity for military command. It will also be affirmed that to trust them with military commands would be dangerous. The two propositions are, however, plainly contradictory; they cannot both be valid. If natives cannot be trained to make efficient officers, the worst that can follow from placing them in such a position will be a deterioration in the efficiency of the army. If native officers would be a source of danger, it must be because they would be inefficient officers. It was no doubt the latter view which has always dictated our military policy, and its fallacy received a sufficiently clear exposure in 1857. In the Bengal Army, the principle of seniority in the promotion of the non-commissioned and commissioned officers had been carried further than in either of the other two armies; it had been carried in fact as far as it could possibly go. The latter class were always the oldest men in their regiments,* and generally supposed to be past work; and when the first symptoms of the mutiny appeared, the opinion was almost universal among Europeans conversant with the native army that, come what might, the native officers who were in immediate expectation of retiring on their pensions, and had everything to lose by revolt, would stick by their colours. It

Objections
to proposal
considered.

* They were usually from fifty to seventy years old.

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was predicted, with equal confidence, that if the army did mutiny, the native officers would be immediately set aside, and replaced by younger and more active men from the ranks. It needs hardly be said that both predictions were utterly falsified. Taking the army as a whole, the old men behaved quite as badly as the young; while the native officers maintained their places at the head of their regiments so long as the regiments held together. Their authority appears throughout to have been unquestioned, and the rebel generals were mostly chosen from their number.

So far, then, the old policy proved a complete failure. It may of course be argued that, if the mutineers had been headed by younger and abler men, they would have been more difficult to overcome; and this may be admitted. But the time has gone by for basing our military policy on the forbearance of our soldiery. Let the army be divided into a sufficient number of small military bodies, kept apart from each other, and prevented from imbibing common interests and ties; and then, so long as a reasonable force of Europeans is maintained in the country, and the strong places and all the artillery are in our hands, we can afford to look any danger from disaffection boldly in the face. Furthermore, while no doubt an able young general would be a more troublesome opponent than a sexagenarian subahdar of sepoys, it is at least reasonable to suppose that a better-educated and more intelligent class of native officers would be at once less prone to the fancies caused by ignorance and superstition, and more clearly alive to the folly and hopelessness of trying conclusions with their masters.

As to the supposed incapacity of natives for war, such an opinion is sufficiently refuted by a mere reference to history. No brilliant soldier has appeared under the British colours, because our system renders such a phenomenon impossible; but Indian history abounds in in-

stances of brilliant native generalship, displayed by men who, if their warfare was rude, were at least vastly superior to their times and to the men around them. This is a true test of genius.

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Lastly, it may be argued that to introduce natives of rank into our army is objectionable because unnecessary : that the experience of the mutiny showed that this class does not require further conciliation : that they stood by us : and that it was the lower orders, and especially the sepoys, chosen mainly from the agricultural classes, who tried to upset our rule. History, however, does not repeat itself ; and the existence of one cause of danger should not blind us to other possible causes. Now is the time, while the British authority is strong, and while the new Bengal army is young, to set our house in order ; to redress inequalities and remove defects ; and, above all, to make a beginning towards entrusting the people of India with a share in the administration of their own country.

CHAPTER XVIII.

SUMMARY.

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It may now be useful, in conclusion, to recapitulate briefly the substance of the foregoing proposals. These, combined with the recommendations on the same subject contained in earlier parts of this work, involve the following general military scheme.

I. The abolition of the three separate establishments of British forces in India, and the union of the whole under one staff, subject to the direct control of the Commander-in-Chief.

II. The abolition of all presidential distinctions between officers of the native army.

III. Prospective abolition of the Staff Corps.

IV. Prospective separation of the civil from the combatant branch of the army.

V. Transfer of officers on civil employ to a Civil Service.

VI. Organisation of native armies by regiments of four battalions, each with a fixed establishment of European officers. Promotions to be determined by regimental seniority, in succession to vacancies.

VII. The military staff in India to be supplied from the regimental officers of the British and Indian armies; the latter while so employed to be borne as supernumeraries in the cadres of their respective regiments, so that these establishments may always be maintained at their full effective strength.

* The reasons in favour of these changes are given at length in Chapter II.

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VIII. Appointments to extra regiments, as the Guide Corps, Hyderabad Contingent, &c., to be filled up in the same way as appointments on the staff.

IX. The Bengal army to be divided into two parts, the Punjab Army [known as the Punjab Irregular Force] being amalgated with one of them. There would be thus four Indian armies, constituted, according to the distribution of troops at present obtaining, as follows :—

	BATTALIONS		REGIMENTS	
	British Infantry	Native Infantry	British Cavalry	Native Cavalry
Army of the South [present Madras Army], stationed in the provinces of Madras, Mysore, Burmah, part of the Central Provinces, and the foreign State of Hyderabad .	9	40	2	4
Army of the West [present Bombay Army], garrisoning the province of Bombay, with Sind, and various native States in Rajpootana and Central India	10	30	2	7
Army of the North [part of present Bengal Army with Punjab Force], garrisoning the Punjab	14	28*	3	12
Army of the East [remainder of Bengal Army], garrisoning country to east of Delhi	19	32	4	12

X. Each of these four native armies, with the British troops attached to them, to form an army-corps under the orders of a lieutenant-general commanding. These lieutenant-generals to be directly under the orders of the Commander-in-Chief in India.

XI. The troops in each province to be at the disposal of the government of that province, which should con-

* Some of these battalions, under existing arrangement, would be stationed south-east of Delhi. The native cavalry is already serving in exactly equal portions within and beyond the Punjab, i.e. north and south of that city.

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tinue, as at present, to be charged with all duties connected with distribution, quarters, and supply, but should have no concern with the discipline, equipment, and patronage of either European or native armies.

XII. The boundaries of military divisions and districts to correspond as far as possible with those of the different civil governments. This measure would involve some readjustment of the garrison of the Central Provinces, which is now supplied by two separate armies.

XIII. Each army to be recruited only in the country which it occupies. Each regiment to have, as far as possible, a separate recruiting district, and one of its battalions to be always stationed there. Men of different castes and religions to be kept in separate regiments or battalions.

XIV. The commissioned ranks of the army to be opened to natives.

BOOK V.

PUBLIC WORKS.

CHAPTER XIX.

ROADS.

IN India the term 'Public Works' has always been applied to every kind of building operations undertaken by the Government, and includes therefore the construction and repairs of all state buildings, civil and military, as well as the prosecution of roads, railways, and irrigation works. Until within the last twenty years, indeed, the operations of the Indian Government were confined almost wholly to works of the former category, which were public works only in the sense of not being private ones; while the greater part of the state expenditure under this head was incurred in the maintenance of the barracks and subsidiary buildings required for the European garrison of the country. The native troops built their own dwelling huts, and the only buildings required for native regiments were the hospitals and magazines. The civil buildings of the country were mainly the various district court-houses, and the maintenance of these unpretending edifices formed but a trifling item in the whole expenditure. In the Madras and Bombay Presidencies, the tanks which from time immemorial have supplied irrigation to the cultivators of the soil, were repaired and superintended by the State; and the maintenance of the

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Technical
meaning
of term
'Public
Works' in
India.

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extensive system of dykes or embankments, which protect the Gangetic delta from the sea, and from the floods of the great rivers discharging into the head of the Bay of Bengal, was also undertaken by the Government, the landholders interested defraying a portion of the expense. But the bulk of the charges incurred under the head 'public works' was, as above stated, for repairs to military buildings, and the department charged with the duty was not unnaturally deemed to be a civil department of the army, and was placed under the superintendence of the Military Board at each of the three presidencies, a body composed of the heads of the different civil departments of the army.

Want of
roads in
India
formerly.
Traffic how
far affected
by it.

India was at this time destitute of roads, and journeys could be made only on horseback or in a palanquin. The facilities for travelling were not, however, altogether so bad as might be inferred from the analogy of European countries. In a climate where the rainfall is limited almost entirely to one season of the year, and in a country the greater part of which is a flat plain, the absence of well-made roads, or of roads of any kind, does not produce the extreme inconvenience that it would occasion in temperate regions. For three months of the year all travelling is suspended, but during the remainder it goes on uninterruptedly. The large rivers are crossed by ferries; the small ones are either dry or can be easily forded. Any track serves for a road, and the worst inconvenience that occurs is the tediousness of the journey to the traveller, and the costliness of transporting merchandise on an unmetalled (unmacadamised) road.

Its effect
on Indian
military
system.

In a military point of view this state of things had even its advantages. The want of roads taught Indian armies how to do without them. The whole system of military transport and supply being necessarily adapted to a roadless country, the ordinary requirements under this head during peace differed in no material degree from the requirements of a time of war. All the subsidiary military

establishments were framed on a scale and plan to admit of the troops moving readily across country in any direction; and when regiments were transferred from one station to another in ordinary course of relief, they took the field just as completely as if they were about to enter on a campaign. Thus to pass from a state of peace to that of war involved no change of system; the ordinary business of peace time constituted in fact a regular training for campaigning; and on the breaking out of war nothing had to be improvised, and the troops took the field without difficulty or confusion. This explains the extraordinary promptitude with which the wars of the Indian Army have been so frequently entered on. The remarkable efficiency of the Indian commissariat is, no doubt, to be ascribed in great measure to the same cause.*

These facts serve in some measure to explain the complacency with which the older school of Indian statesmen—of whom Lord Metcalfe was a notable example—regarded the absence of any progress towards the improvement of the country. The first beginning in this way may be referred to the administration of Mr. Thomason, Lieutenant-Governor of the North-West Provinces from 1843 to 1853. That country is peculiarly adapted for the construction of roads, from the dryness of the climate, its flatness, and the excellence and cheapness of the material for a road surface to be found throughout its extent; and, through the influence and exertions of Mr. Thomason, considerable progress was made during his

First progress in road-making.

* Not the least important part of the training which this rough-and-ready system afforded, was the practice in marching which the troops obtained in the course of the annual reliefs. A regiment often spent three or four months, moving at the rate of twelve or fifteen miles a day, in passing from one station to another, and at the end of the march the men were in the highest possible condition for entering on a campaign. With the introduction of railways, these long marches became of course unnecessary, but with their discontinuance a good deal of that homeliness and familiarity with camp life must be lost, which Indian troops, native and European, have hitherto exhibited.

term of office towards the construction of metalled roads to connect the different large cities throughout his jurisdiction. About the same time a trunk road was commenced to connect Calcutta with the Upper Provinces, and was carried on with great rapidity, so far as regards the formation of the roadway, although at a great loss of life among the convict labourers who were employed. The bridging somewhat lagged behind (even now it is not completed), and the road was not available for horsed carriages until 1850, when mail-carts began to run between Calcutta and Delhi. But the first great impetus was given to road-making in India, and public works generally, on the annexation of the Punjab. The development of this province occupied the particular attention of Lord Dalhousie, who, both on military grounds, and in view to its general improvement, at once prescribed a course of vigorous action. A special engineer department for undertaking road and irrigation works was established for this province, unconnected with the Bengal Military Board, and, a singularly fortunate selection being made for the head of it,* the progress made soon placed the Punjab in this respect on a level with all, and in advance of most other parts of the country.

Lord Dalhousie's reform in organisation of Public Works Department.

Up to this time the presidential system had full sway in the arrangements of the Public Works Department, which was divided into three branches, to correspond with the three Indian armies; and except in the Madras and Bombay Presidencies, where the limits of the civil and military administration were coextensive, the various civil governments had no share in the control of the departmental operations carried out in their respective provinces, which were conducted directly by the Government of India, through the agency of the Bengal Military Board.

In 1854 an important reform was effected, under Lord

* The first Chief Engineer of the Punjab, from 1848 to 1856, was Lieutenant-Colonel Napier, now Lord Napier of Magdala.

Dalhousie's administration, by the removal of the management of public works from the Military Board, and the formation of a separate department (or secretariat) of the Supreme Government for conducting the business connected with them. Simultaneously with this change, the immediate executive control of the public works was transferred from the supreme to the subordinate administrations, and a Public Works Department was formed for each province. This example was shortly followed in Madras* and Bombay, by removing public works affairs from the control of the local Military Boards, and constituting them a part of the business of the civil administration. From this time great and steady progress has been made in the prosecution of works throughout the country, and an annually increasing grant of public money has been provided on this account. In 1849-50 the State expenditure in India on public works of all kinds was about 600,000*l.*, of which 122,000*l.* was for roads; the grant provided for 1870-71 amounts to nearly seven and a half millions sterling.

A Chief Engineer is placed at the head of the Public Works Department in each province, who is also secretary to the provincial government. Under him are the Superintending Engineers of Circles, while the actual execution of work is conducted by the next grade of officers, styled Executive Engineers, aided by Assistant Engineers, with a staff of subordinates. As a rule the same engineer carries out all the works, whether of roads or buildings, within his district or division; but the large military stations usually afford each sufficient occupation for the undivided attention of an officer in this grade; and the more important lines of road are also made special charges, divided into sections of convenient length. Irrigation works also are seldom if ever included in the same

Executive
agency.

* The management of irrigation works in Madras had been for some years vested in the Board of Revenue. A separate department was now organised for all public works.

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executive divisions with other descriptions of work; there is in most provinces a second chief-engineer for irrigation works, and the tendency of things is towards an entire separation of the two branches of the service. The staff of the new state railways lately begun is also organised separately from the rest of the department.

Staff of Department.

The staff of the department is derived from four principal sources. I. Officers of the Corps of Engineers. The greater part of the old corps of Indian [now Royal] Engineers has always been employed during time of peace in this manner; the rest have been chiefly attached to the survey department, only a few being engaged on regimental duty with the corps of Native Sappers. II. But the strength of the Engineer Corps having from earliest times been insufficient for the duties placed on it, the deficiency was supplied by officers from other branches of the Indian Army, which have furnished some of the most distinguished of the hydraulic engineers in that country. Of late years a very complete professional test has been established for regulating their admission to the department, which practically involves that the candidate should first undergo a two years' course of study in engineering and surveying at the Roorkee College, established by Government in 1847. III. The same college furnishes a supply of civil engineers to the department; the candidates—many of whom are sons of officers and other members of the Indian service, while some are natives—besides the professional test, are required to pass an examination in the subjects of general education, of the same kind as that laid down for admission to the British Army. Another government civil engineering college was established at Calcutta in 1856, from which a good many civil engineers, principally natives of Bengal, have been supplied. There is a similar institution at Madras. IV. Of late years a number of young civil engineers have been sent out annually by the Secretary of State; these are nominally selected by competitive exami-

nation, but inasmuch as the number of candidates who could pass the prescribed minimum standard (which was not far short of that established at Roorkee) has been usually less than the number of appointments offered, the test is virtually that of a pass examination. V. Besides these sources of supply, the demands of the service arising from the rapid extension of public works have led to the direct appointment to the department of a great many civil engineers, some from the various Indian railways, others selected and sent out from England by the Secretary of State. The subordinate branches of the department are filled by both natives and Europeans; the latter enter it chiefly from the ranks of the British Army serving in India.

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The expenditure on public works in India during the last ten years has been as follows:—

1860-61	.	.	.	£4,164,654
1861-62	.	.	.	4,742,183
1862-63	.	.	.	4,128,901
1863-64	.	.	.	4,786,726
1864-65	.	.	.	5,183,302
1865-66	.	.	.	4,944,674
1866-67	.	.	.	5,533,115
1867-68	.	.	.	6,195,399
1868-69	.	.	.	7,430,742
1869-70	.	.	.	7,760,050
1870-71 (Estimate)	.	.	.	7,475,560

Distribu-
tion of
public
works
outlay.

But as has already been explained, the term 'public works' is used in a technical sense, to denote all works of construction and repairs undertaken by the State; and it will readily be understood that a considerable deduction must be made from the total expenditure on this account, for outlay on the different civil and military buildings, to arrive at the sum spent on the actual improvement of the country. To take for example the year 1868-69, the public works expenditure was composed of the following items:—

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Military works (chiefly new barracks)	£2,724,002
Civil buildings	1,020,000
Roads, irrigation, and other works of public improvement	3,172,558
Railways	504,522
	<u>£7,430,742</u>

so that about $3\frac{3}{4}$ millions was spent on State works connected with the business of administration, and a little less than that sum for public works proper. But to this must be added 1,700,000*l.* disbursed for guaranteed interest on the paid-up capital of the joint stock railways so that the total outlay on public works, direct and indirect, omitting that connected with the service of the State, amounted in this year to 5,377,000*l.*

Outlay
how provided.

Up to the year 1867-68 the public works expenditure was provided for out of the ordinary revenues of the year, or if there was a deficit as usually happened, it arose on the total finances of the country, and the loans raised to cover it have been raised to supplement the ways and means of the country generally, and not specifically as loans for public works, although it is certainly the case that the deficit would in most cases not have occurred if this public works expenditure had not been undertaken. But from the beginning of the year 1868-69 it has been determined to provide specifically by loans for the capital expenditure on remunerative works, leaving the rest only to be met from the ordinary revenues of the year. Under this arrangement military and civil buildings, the construction and repair of roads, the maintenance of existing irrigation works and the construction of such new ones as although necessary are not likely to be directly remunerative, are provided for out of what is termed the 'ordinary' grant. This grant also provides for the State outlay on guaranteed railways, arising chiefly for the land taken up by them and for the Government controlling establishments. The construction of such new irrigation works as are expected to prove directly remunerative to the extent of defraying the interest on the public debt incurred on

their behalf, and of the railways which are now in course of being undertaken directly by Government agency, are defrayed from the 'extraordinary' grant provided out of loans. The grants for the current year (1870-71) are under these conditions distributed as follows:—

<i>Ordinary grant</i> —[from revenue]		£
Military works	.	1,488,208
Civil buildings	.	710,179
Irrigation works and embankments	.	656,453
Roads and miscellaneous works of public improvement	.	1,143,560
Outlay connected with guaranteed railways	.	859,860
		<hr/> 4,358,200
<i>Extraordinary grant</i> —[from loans]		
Irrigation works	.	1,732,500
State railways	.	1,229,800
Other works of public improvement	.	155,000
		<hr/> 3,117,300
Total	.	<hr/> <u>£7,475,500</u>

Of the total public works expenditure during the five years ending with 1868-69, the sum laid out on roads has been 7,600,000*l.*, of which 2,700,000*l.* was appropriated to the maintenance of existing roads, and 4,900,000*l.* to the construction of new ones. A good road costs about 1,200*l.* a mile, so at that rate 800 miles of road should be completed every year, but a much greater length is usually in progress at one time. Nor would it always be desirable to concentrate the expenditure to the fullest extent possible. The money being collected by imperial taxation from the whole of India, there is a strong obligation felt to distribute the grants among the different governments, so that the tax-payers may share more or less equally in the produce of taxation, and the same feeling operates further to disseminate the contribution made to each province, in view to satisfying the claims arising from its various parts. This dispersion may be and no doubt often is carried too far, to the extent of the available funds being frittered away upon a variety of works, without appreciable progress

Outlay
on roads.

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V.Difficulties
of Indian
road-
making.

being made in any ; but within proper limits the money is more usefully applied in this way, to the gradual construction and completion of roads over a great extent of country, than by a concentration of expenditure in order to bridge and metal shorter lengths completely. The cost of bridges over Indian rivers is in many cases out of proportion to the benefit derived from them. For the greater part of the year an Indian river is not a formidable obstacle to traffic, while during the rainy season the body of water brought down by it is so great, and the current so violent, that only a very substantial structure will stand. A bridge to carry traffic of any kind thus becomes almost as expensive as one which would suffice for a first-class railway ; and the same money laid out in less expensive works, that is, in earth-work and surface covering, will usually produce a much more useful result. These considerations will serve to explain that the unfinished appearance of many Indian roads, where the traveller, after a course of many miles over a well-made line, suddenly arrives at the bank of an unbridged river, does not necessarily denote a want of foresight or good management. Not indeed that these gaps are always left intentionally. It has unquestionably been too much the fashion heretofore among the provincial governments to undertake schemes for new roads on too extensive a scale, and without due provision for completing them ; while road projects have sometimes been set in progress to carry out the views of one governor which have not been followed up by his successor. The rapid course of change always taking place in the higher ranks of the Indian official world necessarily militates against a steady persistence in one definite course of policy, in every department ; and this evil is especially manifest in the matter of public works, from the want of a minister distinctly responsible for the general direction of this important branch of public affairs.

* On the other hand there are certain main lines on

which the extent of the traffic, and the necessity on political grounds for maintaining perfect communication at all seasons of the year, may render it desirable to complete the road regardless of cost. But the main political and strategic lines will in course of time be occupied by railways, and roads will then be principally required as feeders to them; and for this purpose first-class communications will usually not be necessary. The goods traffic of the country, which consists mainly of the export of cotton and other agricultural produce, takes place after the harvest at a season when the rivers are mostly dried up, while for the great majority of the travellers—the natives of the country—extended facilities for slow travelling in every direction are more needed in the present state of things than a few perfect lines; and to meet these requirements most beneficially, the outlay will be directed in the first instance to making fair-weather roads. Bridges will be regarded as supplementary works to be provided subsequently and by degrees, the smaller streams being bridged first, and the larger rivers left to be crossed by fords or ferries, till the expansion of traffic and the progress of the country justify a large outlay of the general revenues on specific localities.

Further, in many parts of the country the great cost of road-making indicates the propriety of constructing railways in the first instance on all lines of importance, instead of beginning with roads and following up with railways. This is especially the case in Bengal, from the magnitude of its rivers and the want of proper materials for road-making. Persons whose experience is confined to Europe may find it difficult even to conceive a perfectly flat country, extending for several hundred miles in every direction, and where there is not so much as a pebble to be found throughout its whole extent. Such is Bengal. Stone if used must be brought from enormous distances, and the only possible substitute for it as a road surface is the expensive and imperfect one of broken

Comparative advantages of roads and railroads.

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bricks. The difference in cost between a railroad and what at best will be a very imperfect road would therefore merely arise from the addition of sleepers and rails. There is no question of tunnels, cuttings, or gradients in this country, and the embankment which serves for the road would do equally for the railway. It is indeed often forgotten when comparing the cost of the two things, how much of the expenditure for a railway is due to provision for carrying the travellers, whereas the travellers on a road find their own conveyances; but the extra cost due to this cause should be more than covered by the receipts realised from traffic. Now a first-class road in Bengal may be estimated at fully 1,500*l.* a mile to construct, and 75*l.* a mile per annum to maintain, and so represents a charge on the State of 150*l.* a year, for which no direct return would be received. If then a cheap railway could be made for 3,000*l.* a mile, which represents at 5 per cent. an annual charge of 150*l.*, it would not be a heavier charge on the finances than the road, provided the traffic receipts merely covered its working expenses; the benefit to the community would be incomparably greater. Possibly a railway of any kind could not be made for this sum; the data for an accurate estimate are wanting, as no complete first-class road has yet been constructed across the plains of Bengal; but if a railway would cost more, so would a road, and the difference in cost would in either case consist merely in the supply of rails and the means for keeping them in place. The rolling stock and stations are provided for the traffic, and should in this comparison be left out of account. And if the cost of the rails could be kept down to 2,000*l.* a mile, this represents an annual charge of 100*l.*, which is little more than that for maintaining the road.

There are many parts moreover where the needful communications may be supplied more cheaply and effectively

Canals
preferable
to roads
in some
parts.

* The roads of Calcutta are macadamised with stones brought as ballast by ships visiting the port.

by canals or river improvements than by roads. This is especially the case in Bengal, which has been bountifully furnished with the means of internal communication in its numerous rivers and tidal channels, but for which the present great trade of that country would have no existence; and money would probably be much more effectively spent in improving these natural highways than in attempting to surmount the difficulties which they present to the construction of roads. On the line from Calcutta to Madras, for example, no amount of expenditure in reason will suffice to make a first-class road accessible in all weathers, for the line crosses the whole drainage of the country and numerous great rivers, and the large sums already spent in this project have produced little or no useful effect. But the numerous rivers that are crossed, and which are too large to admit of being bridged, would serve as most useful feeders for a canal between the two places, while the features of the country are in all other respects most favourable for the construction of that class of works. And a canal connecting the two places is now in course of being gradually carried out.

The extensive irrigation canals of Northern India, running as they do through a highly populated country, are very favourable situated for the development of an extensive navigation, but the use made of them for this purpose has so far been quite insignificant. The rapid current of these artificial rivers renders haulage against the stream expensive and slow, while in the desire to keep down the first cost of the undertaking the works connected with the navigation were constructed on an insufficient scale. The locks are too small to admit steamers of any power, and the bridges are not high enough to admit the passage of large or heavily-laden boats. These defects of construction are being gradually remedied, but the attention of the canal administration has hitherto been given almost exclusively to the exten-

Canal
navigation
in North-
ern India.

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Magnitude
of task of
supplying
India with
roads.

sion of irrigation, and the result presented by these extensive works in the way of navigation has so far been disappointing.

But when everything has been done that can be in the way of cheap railways and canals, the task that will still remain to be undertaken in the construction of common roads is sufficiently onerous. The completion of railroads, so far from obviating the necessity for roads, only serves to make the want of a sufficient number of feeders to the former more distinctly felt. Now the railway system at present projected contemplates the construction of 30,000 miles of line, and it will be a moderate estimate to put down the roads absolutely necessary to supplement the system at four times that amount. At the present rate of progress these would take more than a hundred years to carry out. But not only does the construction of roads demand a continued outlay; every completed work involves a fresh and permanent charge for maintenance. This may be set down at 50% a mile per annum, so that an outlay of the amount heretofore appropriated to the purpose would in a short time be absorbed wholly in maintenance, and nothing would remain for the extension of new roads.

Financial
importance
of subject.

These considerations serve to indicate the great importance which the supply of funds for road-making assumes in Indian finance. The prospective obligations before the government for supplying a reasonably fair extent of feeders to the projected railways involve a probable outlay of one hundred millions sterling for construction, and a final permanent charge of at least six millions a year in maintenance of roads. It is evident that so large an expenditure cannot be provided out of the revenues of the year, while there are obvious objections to covering an outlay of this kind which is not directly remunerative by means of loans. Roads certainly augment the wealth of the country, and therefore its ability to pay taxes, while the distinction so often employed between remuneration

rative and unremunerative works is in some respects more apparent than real. The fact that a direct return is obtained from carrying passengers on railroads, while travellers on common roads arrange for their own transport, is obviously not alone a sufficient ground for basing the distinction on. A railroad may pay its working expenses, yet return no interest on the capital sunk, or less than the interest paid on it if borrowed; this is the condition of most of the Indian lines at the present day. Further, the traffic on a railway must depend in great measure on the facilities of access to it afforded by roads. It is quite impossible to distinguish between the amount of traffic due to the construction of the railway itself, and that brought to it by its road feeders; and therefore to resolve that railways should be regarded as remunerative works and carried out by loans, while the progress of roads should be suspended for want of funds, would be a quite irrational policy. Yet this it might be thought is the apparent course which has now been entered on. For whereas heretofore the annual expenditure on roads has been determined arbitrarily at a figure which should suffice to give a fair rate of progress, the outlay thus going to form part of the deficit of the year, and in effect being carried out by loans, it has now been determined that while railways shall be deemed to be remunerative works, and provided for by loan, the expenditure on roads shall be regulated by the amount of surplus revenue available each year, after the demands for military and civil buildings have been provided for. This ruling has led to a sudden reduction of the expenditure on roads of from 900,000*l.* to less than 400,000*l.* a year; and at this rate the grants will soon be little more than sufficient to maintain the roads already made in order.

What, however, is really indicated by the determination is a radical change of financial policy. The time has come for the Supreme Government to get rid of some

Proposal
to transfer
the charge

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for road-
making to
provincial
revenues.

part of the burden of the ever-increasing business of administration, and the transfer to the provincial governments of the charge of roads throughout the country, and the obligation to find means for maintaining them, is a very suitable thing to begin with. The task of maintaining the communications of the country was easy enough so long as these were limited to a few military lines, but the business is now fast passing beyond the managing powers of the central government, whether administrative or financial, and the declaration lately made on this subject by that authority may be hailed as the first step towards a policy of decentralisation and local taxation, the general principles of which have been advocated in my third chapter.* For what is of course contemplated by this sudden reduction of the grants for roads is not that the rate of progress should be relaxed, but that provincial revenues should be raised for supplementing the imperial. The latter have sufficed to construct the main lines of road throughout India, and will still continue to be applied in extending them through the poorer districts. But local taxation must now be provided for the further development of roads throughout the country, and the richer provinces, where in fact the need for communications is greatest, will be able to retain for their own use the local revenues raised from them. As a beginning towards investing the provincial governments in some degree with that financial responsibility which they are now wholly without, and breaking up that uniformity in taxation which I conceive to be a grave political defect of our present financial system, this contraction of the imperial expenditure for roads may serve to bring about a valuable reform.

Existing
local funds.

The nucleus of such a system of provincial public works is already to be found in the existing local funds. In most provinces a cess is levied by law of one per cent. on the land revenue, which for all India would give

* See also Chapter XXII.

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about 200,000*l.* a year, but these sums must be spent within the respective districts where they are raised. In some provinces there is a more considerable fund derived from the tolls at ferries, which is applicable to works in any part of the province. The aggregate of the local funds in India available for public works is about one and a half million a year.

CHAPTER XX.

RAILWAYS AND THE GUARANTEE SYSTEM.

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V.
Limits of
subject
proposed.

It will be as well to state at the outset of this chapter that it does not contain any descriptive account of the railways undertaken in India. Information on this head is already to be found in a very complete form, in the lucid annual reports of the Government Director of Indian Railway Companies, published by the India Office. The present chapter will be limited to considering the nature of the guarantee system under which these works are carried out.

The
guarantee
system.

All Indian railways have, up to the present time, been undertaken by joint-stock companies, working with the aid and support of the State. The Indian Government provides all necessary land free of cost to the company, and guarantees a certain minimum rate of interest—usually five per cent.—on the capital paid up from the first commencement of the undertaking, recouping itself by the net earnings of the company, which are paid into the State treasury. So long as these earnings do not exceed five per cent. on the paid-up capital, the whole of them are retained by the Government. Any excess above that rate realised in any half-year is divided between the shareholders and the Government, the moiety received by the latter being applied in liquidation of the interest on capital already advanced to the shareholders. The sum to be thus recovered from the company is the aggregate of the half-yearly dividends paid on their capital from the first commencement of the undertaking, together with

simple interest thereon, calculated at five per cent. So soon as this debt shall be cleared off, the whole net earnings will be received by the shareholders.

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Another considerable charge has fallen on the State revenues, arising out of the terms of the agreement made with the companies for remitting their capital to India. It was provided that the capital raised in England (which constitutes all but a very inconsiderable fraction of the whole) should be paid in to the credit of the Home Government of India at the Bank of England, and that the agents of the companies in India should draw on the government treasuries in that country for the amount, at the rate of one shilling and tenpence per rupee. The accounts between the Indian Government and India Office being adjusted at the rate of two shillings per rupee, it follows that a charge of twopence on every twenty-two pence, or more than nine per cent., is incurred by the State on all the withdrawals of the railway companies of capital from the Indian treasuries. On the other hand, all the railway net traffic receipts being credited to the companies in London only at the same rate of 1s. 10d., it follows that so soon as the net traffic receipts realised half-yearly in India exceed the outlay of capital in course of being incurred on new works, this difference in the rate of exchange will become a source of revenue.

State outlay on railways arising out of exchange operations.

Revenue derived from same cause.

It may be remembered that the question was rather warmly discussed a few years ago, whether this difference in the rate of exchange did really occasion any charge on the State, one party arguing that the charge was only nominal, and should not appear in the public accounts. But clearly the point should not admit of question. The Secretary of State is ordinarily placed in funds for home expenditure by money supplied from India, and that expenditure is charged in the Indian accounts at 2s. the rupee. When railway capital is paid up in London, the remittances of the Indian Government are *pro tanto* diminished. But for every 1s. 10d. paid up by the

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company in London, the Secretary of State only credits the Indian Government with a fraction of a rupee, whereas the railway company are entitled to draw a whole rupee in India in lieu thereof. Or, which is the same thing, when the Indian Government pays the railway company its rupee, it debits the Secretary of State with only 1s. 10d., and thus cancels the corresponding credit afforded by the latter; the remaining 2d. obviously forms an actual disbursement, which must be shown as such in the Indian accounts. It may perhaps be argued, that the adjustment between the Indian and English accounts at the rate of 2s. the rupee partakes of an arbitrary character, and that the loss on railway exchange is thus artificially created. And no doubt the remittances from India to England above referred to do not actually take place. The India Office really obtains its funds by the sale of bills on the Indian Government, and were the railway capital not thus paid up, the drafts of the former on India would be correspondingly increased. But the rate of exchange on India has usually of late years been much more than 1s. 10d., so that in effect what takes place is this, that the India Office sells its drafts on India to the railway companies at a lower than the market rate. Even from this point of view there is clearly a loss, which cannot properly be omitted from the public accounts.

Railway
outlay,
a final
charge on
the State.

It thus appears that, irrespective of the cost of land, these guaranteed railways will continue to be a source of annual State expenditure until the aggregate net earnings exceed five per cent. on the paid-up capital; and since this can hardly be the case so long as extensive new works continue in progress, the time when the charge is likely to cease is yet far distant.* It will be apparent moreover, on consideration, that the eventual recovery of the State outlay is extremely problematical, and can only take

* The charge for the current year (1870-71) on this head, viz., guaranteed interest less net traffic receipts, is estimated at about 1,700,000L; the total charges since railways were first undertaken in India have amounted to nearly fourteen millions.

place with lines paying very high dividends. The return to the State will practically be derived from the adjustment in the rate of exchange. And as this mode of recovery will be permanently in force, it will be perceived that so soon as the aggregate net receipts of a railway from the date of its first opening exceed the cost of construction, a profit will have accrued to the State from this source.

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In return for the aid thus afforded, the Indian Government exercises, under the contract made with each company, a complete control over all its proceedings; the previous sanction of Government is necessary to all expenditure, whether for work or establishments, and the accounts are finally audited by government officials. The only point in which free action is reserved to the company is in the appointment of its officers. The various posts to be filled having been sanctioned by the Government, and the rates of salary determined, the selection of persons to fill them is made by the company, with whom rests also the power of promotion and dismissal.

Control
exercised
over rail-
way com-
panies.

The affairs of each company in England are managed as usual by a board of directors; their affairs in India are conducted by an agent, to whom all the officers of the company in that country are subordinate. The control of the Government is exercised, in England, by means of an officer, styled 'Government Director,' who has a seat at the board of each railway company, and a power of veto over their proceedings; in India, by means of an officer styled 'Consulting Engineer to Government,' who is the channel of communication between the agent of the company and the Government, whose approval is necessary to all undertakings and outlay entered upon by the company, and who has a complete power of supervision and control over all proceedings. The provisions of the contract are indeed most stringent in every case; and, besides specifying in detail what particular points are to be determined by Government, such as the direction of the line, the gauge and weight of rail, the locality of the

Terms of
the con-
tract.

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stations, and the buildings and arrangements to be provided at each, the number of trains to be run, and the times for running them, as well as the fares to be levied : it also provides in general terms that the railway company and their officers, servants and agents, and also their accounts and affairs, shall in all things be subject to the supervision and control of the Indian Government, or the officers appointed on its behalf ; and the latter are to be afforded full access to all the records, accounts, and proceedings of the company, save only communications between the company and its legal advisers, which for obvious reasons are allowed to be confidential.

Contract
partially
inopera-
tive.

So far, therefore, as specific assertion of authority goes, the proceedings of the railway companies are as completely under the control of the Government as are the proceedings of its own officials. The contract places the power in the hands of the party which has assumed the whole risk of the undertaking. In practice, however, the case is very different. An expenditure has been incurred on some railways far exceeding what was anticipated, or what is now believed to have been necessary, and this notwithstanding the desire of the Government that they should be constructed with the greatest economy possible ; nor has the Government been able to prevent some lines being executed of indifferent workmanship, nor the accounts of a line falling into almost inextricable confusion. The result has been that the Indian revenues are charged permanently—for practically this is the final incidence of such charges—with an expenditure which, with present experience, it may be safely asserted should not and need not have been incurred.

Cause
of this.

The cause for this unsatisfactory result is not far to look for. The system contemplated by the contract presumes that all business shall be initiated by the officials of the railway company, and where the initiation of affairs lies, there is substantially the power for good or ill. Authority to supervise and withhold sanctions is not sufficient for

effective control. The power of veto cannot in practice be perpetually called into requisition. CHAP.
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As regards business in England, it must of course be impossible for the single government official sitting on the boards of nearly a dozen companies to guide their policy and proceedings. Nor does such a thing appear to have been contemplated. It is in India that the business of the companies is really conducted, and there the government officials are more numerous; but the same relation of things is to be found. There is usually a consulting engineer to each province which is concerned in railway undertakings, but he may have the supervision of more than one line; and when the same railway intersects more than one province, one officer acts as consulting engineer for the whole line. It need hardly be said that were an officer in this position, with the limited staff at his disposal, to insist on all the affairs of the company in its various departments being laid before him, in sufficient detail to admit of their being thoroughly dealt with, in the same way as they come before the numerous officials of the company in their various departments, business would come to a dead-lock. The consulting engineer can obviously only superintend the affairs of the company in a general way, and this sort of general supervision experience has shown to be an insufficient substitute for an efficient control.

On the other hand, even the ordinary motive to economy on the side of the company, the necessity for obtaining a dividend, is here altogether wanting. Much stress need not be laid on this point, perhaps, because this motive has been found quite ineffectual even in those cases where it might have been expected to operate most powerfully. It needs hardly be observed, in these days, that the interest of shareholders in the success of their undertaking is no index of the influence they will exert to procure success; that shareholders, in short, are as a body quite powerless for influence of any kind in the concerns of

Defects of
the guar-
antee sys-
tem.
Responsi-
bility of
share-
holders
and their
agents
weakened;

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while control of the Government is insufficient for the purpose ;

their companies. Nor needs it be observed that the interests of directors of companies are not necessarily identical with those of the shareholders. But, however that may be elsewhere, here at any rate the desire for economy is lulled to rest by the certainty of the guaranteed interest. In the case of many of the Indian lines, the prospect of getting more than the five per cent., even by the most stringent economy, is at best extremely doubtful, while all the motives ordinarily tending to oppose economy, which need not be particularly referred to, are in as full operation here as elsewhere. The control of the direction sitting in London over its officers in India must obviously be much less effectual than that exercised by the direction of any railway in England ; while the power of control possessed by Government, incomplete as it must necessarily be, certainly relieves the officials of the company to a great extent from responsibility for results. This responsibility is virtually transferred to the Government, which bears also in effect the burden of the outlay. Here, then, is a double government of the most defective sort ; the virtual power, and especially the patronage to all appointments of the personal staff—on the proper administration of which the success of the undertaking is perhaps more than anything dependent—resting with a distant body whose sense of responsibility is dulled by the absence of risk, and whose power of control is weakened by distance ; while the authority on the spot, whose interest is most deeply involved in economy and good management, and which is in a position to afford a really effective supervision, is confined to the negative action of giving advice and vetoing proposals. The weakest point in the system is perhaps the want of control possessed by the Government over the *personnel* of the railway companies. The Government can object to their proceedings, but it cannot object to their men. It needs hardly be said that in India especially the success of measures depends in great degree on the character of the agency

employed ; but while the Government has vastly better means of ascertaining the relative merits and fitness of the various railway officials employed in India than the distant board possesses, it is hampered in its railway administration, under present arrangements, much in the same way that its general administration of the country would be, were all Indian patronage and promotion of Indian officials retained by the India Office. The result of these false relations between the two parties to the contract, is manifested in the attitude not unfrequently assumed by the officials of the companies. It seems often to be supposed by them, not only that the shareholders have a greater interest in the concerns of the railway than the Government, a notion utterly fallacious, but that the interests of the two are in some way antagonistic, and that their duty to the former requires them to oppose the views and wishes of the latter. This feeling of antagonism is perhaps an unavoidable consequence of the mode in which the government control is necessarily applied. An office whose functions are limited to criticism and objections—and this is the only way that the government control can at present be exercised—must perforce operate to create a feeling of irritation on the part of the recipients. That the relations between the consulting engineers and the railway officials have often been marked by the exhibition of this feeling it would be false delicacy not to admit. It is impossible that it should not exist ; and that the present plan works at all, and does not utterly break down in practice, is due to the good sense, temper, and public spirit which are ordinarily brought to the matter by both sides.

It is but fair to add that the experience of twenty years has pointed out how the friction of the system can be reduced to a minimum, and that at the present day the government control is exercised in a much more satisfactory and effective way than was formerly the case.

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It is now usual for the consulting engineer to be present at the periodical meetings between the local agent and the heads of the different executive departments—chief engineer, traffic manager, locomotive superintendent, storekeeper, &c.—when all matters requiring his sanction are brought up and formally sanctioned, the consulting engineer's signature to the minutes of the meetings representing the approval of the Government. This is a great improvement on the old plan of submitting all business requiring government sanction to the consulting engineer by letter. An equally great improvement has been carried out in the government audit of the accounts. Formerly schedules of expenditure, comparing the outlay with the sanctions, were rendered to the consulting engineer for audit; but there was nothing on the face of these to show how far they agreed with the entries in the books of the company, nor anything to prevent that expenditure irregularly incurred should not be withheld from being exhibited in the schedules. The audited expenditure might therefore be all in order, while the unaudited remained quite unchecked; and, as a not unnatural consequence, the latter gradually came to be, in the case of some companies, a very considerable part of the total disbursements. But under the audit system as now worked, a government examiner is attached to the accounts office of the railway company, who has complete access to the records, and checks the entries in the books day by day with the original vouchers. It is his duty to report at once any instances of irregular or unsanctioned disbursements, and especially to object to any unauthorised distribution of charges between capital and revenue. A periodical account is rendered, showing all the receipts and disbursements of the company, with the consumption of stores, distribution of establishment charges, and so forth, which is vouched by the examiner; when the account is at once audited, and the amount shown to be chargeable to capital and revenue respectively.

is passed to those heads in the government books. And it may not be out of place to observe that by an audit and inspection of a similar kind, carried out by officers entirely independent of the company, would possibly be supplied the want so keenly felt at the present time by the shareholders of English railway companies. In this way their interests might be adequately protected, without undue interference with the executive management. It is not only that such a system provides for at once bringing irregularities to light; when publicity is certain to attend them, irregularities will not occur.

As regards Indian railways, however, this system of control, even when worked at its best, with all the aid of good-will and tact on both sides, is yet but a poor substitute for the effective control that would be exercised, were the management of the railways assumed directly by the State. And if the double government be unsatisfactory during the first construction of a railway, it will be still more so in the management of completed lines. The interest of the shareholders in the cause of economy still continues to be comparatively small; while, so far as they are exerted at all, it is then that their views, and those of their agents, come most directly into opposition with the wishes of the public as represented by the State. The interest of the former is to obtain the maximum of return with the minimum of traffic; of the latter to produce the same returns by the lowest possible rates of fares. And here the State is powerless for action. It can prohibit the increase of fares beyond a certain amount, but it cannot cause them to be lowered. It can object to a proposal for running a particular train, but it cannot require the company to run additional trains.

Further, up to the present time each line of railway has been an isolated undertaking. But railway construction in India is now in an early stage of progress; and as the lines are extended and joined with each other, their

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diverse interests will come in contact, and the need for an effective central control, to secure uniformity of system and mutual accommodation, will be still more plainly felt than it is even now. And already it has become apparent how insufficient are the government powers for the purpose. Two railways, for example, have their termini at Calcutta, and every consideration of convenience points to a junction at that place. But this involves some alterations of the terminal works of one or both lines, and the construction of a bridge over the Hooghly; and several years have been spent in fruitless discussion on the matter, the shareholders and their representatives declining to come to an agreement. And it has been proposed, as the only way of getting over the difficulty, to form a third company, for bridging the Hooghly and carrying out the other needful works. The Government cannot make the old companies undertake new works, involving additional capital; but when the capital of the new company is raised, it can be employed only on works approved by the Government, and in this way the desired improvements might be accomplished. When it is remembered that, in any case, the capital is to all intents and purposes actually raised by the Government, this affair has almost a ludicrous aspect. But such difficulties must be expected to be of frequent occurrence as railways are extended. In England the want of concert between the different railway companies in their traffic arrangements is felt to be sufficiently vexatious, but then this is merely one of the evils to be set against the vast benefits conferred by private enterprise. But private enterprise there is none in Indian railway undertakings. No more capital is obtained by employing different companies, than could be obtained were only one company to be employed, or had the agency of companies been entirely dispensed with. In fact it may be said that all these difficulties are purely of artificial creation.

It seems needless to press the evils of the guarantee system further. They have long been apparent to all acquainted with the subject, and the Indian Government was so sensible of the defects inherent in the system, especially in the tendency which it evoked to extravagance of outlay and consequent increase of the public burdens, that more than one effort has been made to depart from it. The late Lord Elgin, when Governor-General, took the opportunity of a public dinner given on the opening of the East Indian Railway to Benares, in 1862, to announce that the time had come for replacing the guarantee system by some method, under which, while railway enterprise should continue to receive the support of the State, a direct incentive should be held out to the shareholders and directors to the practice of economy and effective supervision. Accordingly, on the next occasion of proposals for a new line being brought forward, the projectors were informed that the Government were prepared to give—in addition to the needful land as usual—a bonus of 100*l.* per mile for twenty years on every mile of railway constructed. The total payments to be made would thus amount to 2,000*l.* a mile, or, in this particular case (where a cheap line was contemplated), about two-fifths of the whole cost. Regarding the bonus proposed as interest, it would have amounted to a payment of two per cent. on the estimated outlay for twenty years; so that, provided the shareholders could obtain a return of three per cent. from working the line, they were secured a fair rate of interest for their capital.

This proposed bonus, thus fixed arbitrarily at 100*l.* a mile, proved utterly insufficient to attract the needful capital. Whether a larger sum offered on similar terms would have sufficed for the purpose cannot now be told. It may however be presumed that if the offer of the Government had been gradually raised, a point would have been arrived at when the inducement held out would

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have become a sufficient attraction. But the bargain might then have been even worse for the State than that which it makes under the guarantee system. At any rate the experiment was not tried. Other devices with a similar object have been proposed, one of which certainly fulfilled the needful conditions of the case. This was that the Government should guarantee the amount of gross receipts, so that the net earnings, and consequently the dividend to be realised by the company, would be directly dependent upon the manner in which the line was worked, and the first cost of construction. Here, then, the strongest inducement would have been offered to the company to practise economy and good management; while, so long as these conditions were satisfied, the shareholders would have been held safe from risk of loss, should the traffic on their line prove unremunerative. That such a plan should have been found quite ineffectual in its operation on the London market, shows that the shareholder class is sensible of the practical inefficiency of such motives for ensuring the desired results, and of its own inability to control effectually operations carried on in that distant country. And, after all, any arrangement such as this would have been at best a mere palliative of the evil. The State cannot escape from bearing the largest share of the burden, if railways are to be constructed in India, under any system that may be devised. The share might in this case have been less than before; but the relief would have been gained, in the case proposed, at the sacrifice of a great part of even the limited control which it exercises under the present system.

There is another evil of the guarantee system which should be here pointed out—namely, that it does not ensure the selection of the most remunerative and useful lines, but that, in practice, the preference will usually be accorded to those of which the projectors urge their claims with most persistence. In the first instance, indeed, the great main lines of Indian railways to be primarily

constructed were marked out by Government during the administration of Lord Dalhousie; and as these were also incontestably the most promising undertakings of the kind, as mere speculations, no conflict of views arose regarding them. And the day is yet far distant when railway-making will be overdone in India, or when effectual competition will come into operation; each line has at present its own distinct area of country to act upon. But although it may be said that, so far, every railway constructed in India is in itself a desirable undertaking, yet already it may be asserted that they are not all of them absolutely the most advantageous that could have been selected; and this sort of diversion of capital from the best class of investments is likely to increase with the extension of railways, so long as the subscription of capital is dependent on the appearance of projectors coming forward to get up a company. At any rate, if the system were to continue, it would be necessary to modify so much of it as leaves the initiation of schemes to private individuals. It would be for the Government, henceforward, to determine what lines should be selected, and in what order they should be undertaken, and then to invite capitalists to form companies for carrying out the work.

But here the question has to be asked, why should resort be had to this cumbersome, roundabout process when the affair could be managed in so vastly more simple and convenient a manner, by the Government itself undertaking the construction and management of Indian railways? The truth is, that all these devices for bonuses, or guaranteed interest, or guaranteed traffic receipts, are merely transparent disguises of the fact, that Indian railways, under any form, are really government undertakings; and until this fact is distinctly recognised, a thoroughly satisfactory policy in regard to railway affairs appears to be impossible. The circumstance that the agency of joint-stock companies was employed by the

No plan satisfactory short of direct assumption by Government of railway management.

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Government of India on the first introduction of railways into that country, cannot be held to carry any weight in the present day. At that time joint-stock management was regarded on all sides as the perfection of mechanism; there were no limits to the capacity it was supposed to possess, for carrying out satisfactorily every description of business, and the efficiency of administration by government officials was just as unduly depreciated. Public opinion has changed since then, and even in England a proposal to transfer all railway property to the control of the State is deemed to be not undeserving of serious discussion. Here, however, enormous difficulties would have to be encountered in such a measure, from the much greater development of railway affairs; while among other objections may be named the difficulty of organising an agency on the scale adequate for managing so great a business, and the vastness of the debt to be created. But there is nothing of the kind to be encountered in dealing with the Indian railways. It would be merely a case of altering the mode of control, and rendering it more efficient; while the railway stock is already virtually a government debt, which would be lessened rather than increased by conversion into recognised government bonds. It may be safely asserted, that were Indian railways now about to be undertaken for the first time, with present lights, the employment of guaranteed companies would never have been seriously proposed. At any rate, that they were so employed, under ideas now qualified by subsequent expediency, affords no presumption for maintaining the practice.

But employment of joint-stock companies beneficial because ensuring continuous application of capital to work.

One very important qualification to the foregoing argument must, however, be here stated. The employment of joint-stock companies has involved the application of their capital to the purpose for which it was raised. Had the capital been borrowed directly by the Indian Government, it is hardly doubtful that, in times of financial difficulty, especially such as that which attended the mutiny of 1857, the money borrowed to make railways

would have been diverted to other purposes, more particularly when it is remembered how weak was the financial branch of the administration at that time. The progress of Indian railways would thus have been subject to constant checks, if not at times to total suspension; whereas, under the system pursued, progress has been maintained uninterruptedly from the beginning, save during the mutiny, and even then operations were resumed immediately on the pacification of the country.

The advantage gained, by thus ensuring the constant application of railway capital to its destined purpose, can hardly be overestimated. It is so great, indeed, that the guarantee system, with all its defects, may yet be pronounced preferable to a plan which should place the funds for railways at the disposal of Government, and render their progress liable to be checked by the caprice of ever-changing administrators. For the first construction of a railway, therefore, I conceive that some agency like that of a joint-stock company, which shall be the holder of the capital raised, is a most useful, if not a necessary, condition of the case. But with the completion of the line, the use of such a machinery comes to an end, and henceforward it is simply an obstruction and inconvenience.

This advantage atones for all defects of the system.

during the construction of a line,

These considerations point to the introduction of a system under which an Indian railway, while undertaken in the first instance by means of a joint-stock company, should on completion, pass into the hands of Government, and become part of the State property. And such an arrangement might be established, free from all the objections which beset the guarantee system. Nor need the practical control of operations by the Government be deferred pending the process of construction. A joint-stock company may be usefully employed to raise the money, because such a body constitutes a convenient trust for holding the capital, and its employment ensures that the money shall be appropriated to the purpose for which it was raised. But there its utility ends. For supervising the operations undertaken in India, such a body is worse

after which it should be transferred to government management.

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than useless. It may be safely asserted, not only that no other agency commands the same facilities for conducting a great business of this kind in India as does the Government, but that no other body can conduct it in a thoroughly satisfactory manner. The Government alone possesses the needful local machinery and information for efficient supervision and control.

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Under these views, the method most suitable to be adopted for the construction of new railways in India would be somewhat of the following kind. On the execution of a project being determined upon by the Indian Government and Secretary of State, a company would be formed for raising the needful capital, on which a minimum rate of interest would be guaranteed. But with the subscription of this capital the independent functions of the shareholders would practically terminate. They would be, in fact, simply the holders of a particular description of government debt, to be applied to a particular purpose. A London board would, however, be required to conduct the business of the railway arising in England, connected with the purchase and shipment of stores, engagement of the European staff, and so forth; and it would be desirable that a part of the directors should be elected by the shareholders, as tending to supply the services of officials conversant with English railway business, and extending the very limited class of persons interested in Indian affairs. But the Government, having the largest stake in the concern, should certainly retain the appointment of the chairman in its own hands.

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Further, the control of the railways thus passing into the hands of Government, the question at once arises whether, in place of a separate London board for each railway, one railway board for all Indian railways, with sub-committees for the different lines, would not be a more economical and convenient arrangement? The chairman of such a board being placed on the same footing, with respect to emoluments, as the permanent heads of the great public departments—boards of customs, inland