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FRANCIS BACON

OF VERULAM.

REALISTIC PHILOSOPHY AND ITS AGE.

BY
KUNO FISCHER.

TRANSLATED FROM THE GERMAN BY

JOHN OXENFORD

"Veritas Temporis filia."

NOV. ORG. I. 84.

LONDON:

LONGMAN, BROWN, GREEN, LONGMANS, & ROBERTS.

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TRANSLATOR'S PREFACE.

MY chief object in translating Dr. Fischer's excellent work on Bacon and the realistic philosophy, was to lay before English readers a brief but complete digest of two books, which, all-important as they are in the history of science, are most assuredly commended much oftener than they are read. Whatever veneration may be paid in England to the treatise "De Augmentis Scientiarum" and to the "Novum Organum," few indeed are the students who would elaborate for themselves so perfect a summary of the doctrines contained in those celebrated productions as is presented by Dr. Fischer within the space of a few brief chapters. Whether his estimate of the English philosopher merits approval or not, the value of the descriptive part of his book

remains indubitable. To heighten this value, and to bring Bacon more immediately before the reader than he is in the original German, I have given extracts in the margin, where Dr. Fischer has only given references; and wherever it has been possible, I have introduced the Baconian words into the text.

In performing the work of translation, I have endeavoured, as much as possible, to make my version *readable*. Dr. Fischer does not, it is true, indulge in those technicalities which have been introduced into the German language by the successors of Kant; indeed, with the exception of a few Kantisms, generally explained by the context, his book is free from technicalities altogether. Nevertheless, the German language, independently of the influence of philosophical schools, contains expressions which cannot be verbally rendered without producing a result totally unintelligible to any one but a German scholar. I have, therefore, endeavoured to render sentence for sentence rather than word for word, certain that I should thus render a greater service to the

generality of readers than by encumbering the text with a number of strange compounds, utterly at variance with the genius of the English language. Some readers, perhaps, will think I might have gone farther in this respect, and adopted more familiar expressions than (for instance) "realistic" and "naturalistic." To these I reply, that the abolition of *all* apparently pedantic expressions would produce ambiguity. To ordinary ears, "real philosophy" would sound as the antithesis to sham philosophy, rather than to any form of idealism.

Where Dr. Fischer's marginal references have obviously been made for a German public only, I have taken the liberty to omit them, and in some cases, where I thought further elucidation necessary, I have added a note, signed with my own initials. With the same view, I have inserted two appendices.

J. O.

London : September, 1857.

IV.D.12



AUTHOR'S PREFACE.

THE theatre of modern philosophy is a field of battle, wherein two opposite and hostile tendencies—Realism and Idealism—contend with each other in asserting claims to truth. These tendencies are not merely systems, but *kinds* of philosophy that in no age but a modern one could become so conscious of their mutual difference, or so definitely and clearly express it. If we were to compare scientific with dramatic opposition, the realists and idealists would be the two adverse characters in the drama of modern philosophy. The opposite parties will not be silent until their union is effected, until the modes of thought, now strained against each other, become so interpenetrated, that both are saturated alike. For each lives only in the weaknesses and defects of its adversary. The boundaries between them will be passed when they are clearly understood; that is to say, when each party recognises the strength of its adversary, and appropriates it to

itself. Many attempts to produce this result have been made during the first period of our philosophy. If we accurately consider the matter, we shall find that realism and idealism, from the time of their modern origin, have described not parallel but convergent paths, which, at the same time, have met at one common point. This point at which the idealistic and realistic tendencies crossed, as at a common vertex, was the Kantian philosophy, which has taken account of them both and united them in their elements. In this, as indeed in every respect, it has set up a standard, which must serve as a polar star to all subsequent philosophy. If, at the present day, we are asked, how we shall follow the right track in philosophy, we must answer, by a most accurate study of Kant. Since his time there has not been a philosopher of importance, who has not desired to be at once a realist and an idealist. If the name had been sufficient, the great and all-pervading problem that occupies the mind of modern philosophy would have already been solved more than once. All these self-called ideal-realistic, or real-idealistic, attempts do not, indeed, prove that they have solved the problem, but they prove that it is recognised and admitted. It is sufficient for us to establish the fact that the problem exists, and, without opposition worthy of note, is everywhere regarded as all-

important.* Nevertheless the contest continues, and the idealistic systems of the Germans, however realistic they would appear, have always found realism arrayed against them. The two tendencies are again divergent, and the divergency is not to be got rid of by any new name or formula.

German idealism would have been much benefited if it had made itself thoroughly acquainted with its adversary, and learned to appropriate the strength of that adversary to itself, in order to shun the more securely the accompanying defects. Our German idealists have no right to treat the English empirical philosophers with so much superciliousness; and with a few words to consign them to the contempt of their disciples, as mere "unspeculative" intellects, more especially as Leibnitz by no means thought it beneath him to honour Locke with a close examination, but by his "*Nouveaux Essais sur l'Entendement Humain*," did greater service to German philosophy than all the philosophical writings that appeared among us prior to Kant's "*Critique of Pure Reason*." His example has not been followed. If German philosophy is looked upon in England and France as German dreaming, we ought not to repay one wrong with another, but are bound to deprive the

* "*Gültig*," literally "valid;" but the word would hardly be forcible enough in this place. — J. O.

reproach of its force, by showing that, without dreaming and without prejudice, we recognise foreign philosophers, and appreciate them to the extent of their deserts, especially as in matters of science every act of injustice betokens ignorance.

Francis Bacon is still regarded by his countrymen as the greatest philosopher of England; and in this opinion they are perfectly right. He is the founder of that philosophy which is called the realistic, which exercised so powerful an influence upon even Leibnitz and Kant, to which Kant especially was indebted for the last impulses to his epoch-making works, and to which France paid homage in the eighteenth century. Now this very philosopher, of the first rank among the realists, is not only still without that acknowledgment in Germany, which is his due, but he has never even been treated of by any German in a thorough and satisfactory manner. In our histories and compendia of modern philosophy, Bacon plays either no part at all, or at best but a very insignificant and subordinate part, as one among others who made his appearance during the strange transition from mediæval to modern philosophy. Some rank him with the natural philosophers of Italy, with whom Bacon, if we regard the principal point, has scarcely more in common than the expression "natural philosopher;" and from whom he is distinguished not

only by his mode of thought, which is entirely different, but also by his relation to antiquity, which in this case offers a fitting standard. Others express his relation to modern philosophy by placing him by the side of the German mystic, Jacob Böhme, with whom he has nothing in common but the first letter of his name. In a word, most of the opinions respecting Bacon, which are uttered among the Germans, especially those most prominent, are as superficial as they are unsatisfactory and incorrect. If this had not been the case I should have had some reasons the less for writing this book, in which I endeavour to do justice to the importance of Bacon.

It may be objected that the points of contact between the German and English philosophy—between Idealism and Realism—are less to be found in Bacon himself, than in some of his successors; that it was not Bacon, but Hume, who influenced Kant, not Bacon, but Locke, who influenced Leibnitz; that Spinoza, if he was affected by the English at all, was influenced not by Bacon but by Hobbes; and (as is well known) invariably spoke of Bacon in terms of contempt. To this I shall answer that it was Bacon who was opposed by Descartes, the acknowledged founder of dogmatical idealism. As for those realists, who have come into contact with the opposite philosophy, as represented by Spinoza,

Leibnitz, and Kant, this work is intended to prove that the Hobbes, Lockes and Humes, are all descendants from Bacon ; that in him they all took root, and that without him they cannot be truly explained and accounted for, but merely be understood in a fragmentary and cursory manner. Bacon is the creator of the realistic philosophy, the period of which is throughout a development of Baconian genius, so that every one of its formations is a metamorphosis of the Baconian philosophy. To this day realism has had on its side no greater mind than its founder Bacon ; no one who has represented the true realistic mind, exulting in all its fulness of life, so broadly and at the same time so characteristically ; so respectfully, and at the same time under such an ideal aspect, and so high in its aspirations ; no one in whom the limits of this mind are so definitely and naturally exhibited. Bacon's philosophy is the liveliest expression of realism, and at the same time wholly free from affectation. After the systems of a Spinoza and a Leibnitz had long influenced me, filled my thoughts, and, as it were, absorbed me into themselves, the occupation with the works of Bacon seemed to me like a new life, the fruits of which I collected in this volume. If I resign myself to the impression which is made by the Baconian philosophy as a whole, and which ever enlists the imagination on

its side, I feel that there is something in it that in a most peculiar, and at the same time natural manner, distinguishes it from other works of European philosophy. In its orderly and vigorous fulness of life, that excludes all artificial regularity, this philosophy, like an English park, is totally free from all formal trimming; or, to express myself more cogently, it has, like the mighty island that gives it birth, nothing inland about it. I can easily understand that Bacon is regarded as the national English philosopher *par excellence*.

Bacon stands in the same relation to Realism as that in which Descartes stands to dogmatic Idealism, Leibnitz to German "enlightenment," Kant to modern philosophy. He opens the path which others pursue, by following his traces. Hence I have treated him as much in detail, the others as concisely as possible, having adopted a similar plan in another work with respect to Leibnitz and the German philosophers of the eighteenth century. The scientific importance which I attach to Bacon, and the limits set by the plan of my work, may justify this mode of treatment. My purpose was to exhibit the Baconian philosophy, and from this basis to deduce the theories of the philosophers who succeeded him. If the English philosophy is dependent on Bacon, and the French philosophy of the eighteenth century dependent upon that, I could

do no more with respect to the latter, than designate the philosophical position which it occupies, especially as it is my design in another monography to review more closely the group of these French philosophers.

While this book constitutes an independent work in itself, distinct from my general work on the history of modern philosophy, I will own that it is so far related to it that the subject treated there is *not* treated here. This is in accordance with the object of the book; for Bacon and his successors, although they form a necessary supplement to modern philosophy, and are not without influence on the idealistic branch of it, nevertheless, have a separate and independent direction of their own, which does not decline towards the opposite side. For the fact that both tendencies meet in Kant, is a result of the power of attraction that was exercised upon Kant by realism.

The relation of Bacon to antiquity, and that of his philosophy to Kant, were the first points of my subject to which I directed my glance, and which I made clear to myself. In the explanation of these points consisted my first attempts at the present work. This proved of practical importance to myself, as it was in a public lecture on the relation of Bacon to the ancients, that for the first time, after a lapse of seven years, I once

more discoursed from an academical chair. The philosophical faculty of Berlin, to whom I am indebted for that memorable honour, will allow me, in remembrance of it, to dedicate to them this book with silent gratitude.

KUNO FISCHER.

Heidelberg : 27th January, 1856.

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FRANCIS BACON

OF VERULAM.

CHAPTER I.

BACON OF VERULAM AS A MORAL AND SCIENTIFIC CHARACTER.

THE great intellectual achievements of a man are never so utterly distinct and separable from his life that he can be one person in his worldly career, and entirely another in the emanations of his mind. There is always a certain correspondence between the moral and the scientific character, and a mistake has been made when the character of Bacon has been excepted from the law of such an analogy. On the other hand, this law would be very wrongly applied if we attributed certain moral blemishes and delinquencies affecting the life of Bacon to his scientific

tendency, or from this tendency explained his moral course. Such a relation would be more than analogy, it would be a relation of cause and effect. Of such an immediate influence of the scientific upon the moral character, we can only speak with great caution, inasmuch as the moral character precedes the scientific in order of time, and human characters generally do not form themselves before the mirror of science. Nevertheless, there is between the two modes of expressing the mental individuality a natural homogeneity, which does not consist in the one following the other, but proceeds from this: that the genius of the man directs both to the same ends; for the genius of a great individual remains the same in all its utterances. Leibnitz, with his personal character, could never have become a philosopher like Spinoza, nor Bacon like Descartes. The scientific direction pursued by Bacon fully corresponded to the peculiarity of his nature, to his wants and inclinations; and this direction was greatly favoured by his moral disposition. Indeed, without such a cooperation of the mental powers, no great intellectual achievement is possible.

It is wrong to blame or pity Bacon because, being a scientific character of the first rank, he was at the same time too ambitious to prefer the repose of a scientific life to the charms of high

and influential office. Bacon himself, in his old age, has lamented this as a misfortune, but not as a weakness. The misfortune was his destiny, and likewise the destiny of his science. Not only he, but his science also, was too ambitious, too practical*, too much open to the world, to bury itself in seclusion. To advance the power of man is, on one occasion, called by Bacon himself the highest degree of ambition.† And this ambition belonged to his science; this effort was its first and last thought; on account of this very ambition Bacon became a scientific character. His science was of a kind that could not endure a life of quiet retirement; it would rather float along the stream of the world than remain in a state of tranquil and secluded contemplation. "A talent is cultivated in seclusion,—a character in the stream of the world."‡ To adopt these words of Göthe, the home of Baconian science was the school, not of talent, but of character,—that is to say, it was worldly life on a grand scale. To this his philosophy and all his efforts were inclined. He decided early in life that a

* "Thatenlustig," literally "delighting in action."—J. O.

† Compare Nov. Org. i. 129.; also vide Chap. III. of this work.

‡ "Es bildet ein Talent sich in der Stille,
Sich ein Character in dem Strom der Welt."

science secluded from the world must be narrow and sterile, and that the wretched plight from which he wished to rescue philosophy was partly to be explained by the life of retirement usually adopted by learned men. He judged that the knowledge of these persons was as narrow as their cells, as the convents and cloisters in which they were secluded, in ignorance of the world, nature, and their own times. So diametrically—both from inclination and on principle—was the scientific mind of Bacon opposed to the condition of learning that had continued down to his own time, that he necessarily felt an impulse to alter even its outward form of existence, and to exchange the life of the cloister for the life of the world. The student of the cell was transformed into a man of the world, who, both in science and in practical life, aimed at the same lofty goal of influential power. Doubtless his practical career demanded a heavy expenditure of time and labour; and thus there was so much less to bestow on scientific labour. But are we, on that account, to wish that Bacon had devoted his whole life, or the greater portion of it, to secluded science? This would be neither more nor less than wishing that Bacon had been endowed with another sort of scientific mind; that he had been another philosopher than he actually was;—this would be over-

looking the peculiar character of Baconian science. If we take this peculiar character into consideration, we find there is no contradiction implied in the fact that Bacon at the same time directed his energies both to science and to the acquisition of office. Even in the name of his science he could require the scholar to learn practical life from his own experience,—not merely theoretically, as by a bird's-eye view, but by actual participation. This, indeed, was what Bacon desired. In a scientific spirit he reproached the learned for their ordinary deficiency in a virtue of the understanding that could only be acquired in practical life,—namely, a knowledge of business and political prudence.*

However, the manner in which Bacon displayed himself as a political character,—his own especial acts in this capacity seem diametrically opposed to his scientific greatness. This opposition has often been pointed out and lamented. Bacon has even been set up as an example to show how widely distinct from each other are the scientific

* De Dign. et Augm. Scientiarum, lib. viii. cap. 2. (near the beginning). —“Doctrinam de Negotiis pro rei momento tractavit adhuc nemo, cum magna tam litterarum quam litteratorum estimationis jactura. Ab hac enim radice pullulet illud malum, quod notam eruditissimis inussit; nimirum, eruditionem et prudentiam civilem rarò admodum conjungi.”

and moral tendencies of a man—to how high a degree of internal contradiction the variance between these two characters can be brought. Mr. Macaulay, especially, has of late pushed this contradiction to such an extreme point that it seems insoluble, and the character of Bacon appears inexplicable. Macaulay pleads against Montagu on the subject of Bacon's moral worth; and it is well so to compare the two biographers (of whom the second is the panegyrist), that one may serve as a corrective to the other. For our own part, we shall neither defend nor attack Bacon's character, but simply explain it, and hence we look here for that intrinsic harmony which belongs to every important character. Taking everything into consideration, we must confess that the contradiction between Bacon the philosopher and Bacon the political character does not appear to us so violent as it is represented by Macaulay. Neither was the one (to use the expression of Macaulay, who infelicitously cites a Baconian figure of speech),—neither was the one a “soaring angel,” nor the other a “creeping snake.” Neither on the one side is there pure light, nor on the other is there mere shade, but on both sides is a compound of both. Of all the images that could be selected, none could be more unhappy than one which represented

parison between Bacon's philosophy and a winged angel. On the contrary, it was Bacon's express and repeatedly avowed intention to make philosophy leave off her habit of flying; to pluck off her wings, and to put leaden weights in their place; to hold her firmly down upon the ground, among earthly things, where Bacon himself lived, with all his inclinations. Bacon wished to transform philosophy, from a roving spirit that looks downwards from above, into a human being, that cautiously ascends by the toilsome road of experience. When Bacon, as a political character, takes the same road, and stumbles so often on this steep, rugged, intricate path of life, he does not, therefore, become a creeping snake. If everything that crept was necessarily a snake, it would be bad indeed; and I verily believe that whoever, under similar circumstances, pursues the same course as Bacon, will often find himself in such a strait that he will be compelled to creep. I well know the objections that will be made here. The blemishes of Bacon's life are not mere human errors and weaknesses, but debased sentiments and political crimes. This I do not pretend to deny; much less would I defend delinquencies which are proved beyond the possibility of doubt. The unworthy sentiments are open to view; the crimes are acknowledged by Bacon himself; they have

sullied his public name, and if they are designated in the hardest terms, I offer no objection; only to me these single traits are not all the indices of his character. As far as I see, the character would have been precisely the same if the unworthy sentiments had not been so obviously manifest; if the crimes had not been committed. I could well imagine that with greater prudence Bacon might have avoided either the crimes themselves, or the whole weight of responsibility attached to them; but in that case I should not think a whit the better of him, or a whit the worse. He would then have been a more cunning, but not a better man. Indeed, a thorough-paced scoundrel, an accomplished plotter, would never have fallen into such open guilt. A human character should indeed be judged by its actions; but then the whole of these should be taken into the account. We should consider not only how a man deports himself in isolated cases, under the combined influence of all sorts of circumstances, but how his moral elements are blended with each other. That which, in the natural disposition of a character, is a mere weakness, may easily, through the force of circumstances, give rise to a bad action, or even a crime. By this the mode of action is certainly not improved, but neither does the element of the character become worse. When bad actions are equally base in their

outward appearance, the psychological *connoisseur* of the human may still detect an important difference in the fundamental character of the delinquents. If we pay no regard to the mixture of moral elements, we form a one-sided, abstract, and therefore incorrect judgment on the subject of character.

Let the experiment be made with Bacon. Had he not been entangled in the affairs of Essex and Buckingham, we should have known none of those traits, on the strength of which Macaulay opposes the baseness of his moral personality to his scientific greatness, and Macaulay would have passed a more favourable judgment. But he would not have been right in so doing; for Bacon's moral nature would still have been the same. We do not say this to excuse or defend, but simply to *explain* his character, which remains inexplicable if the apparent contradiction be admitted. What attached Bacon to Essex and Buckingham?—not friendship, not sympathy, but motives of self-interest. They were men of the most powerful influence; the former was the favourite of Elizabeth, the latter of James I. To rise in the offices of the state, Bacon desired and sought court favour; and this could not be obtained and preserved without such mediators. If he would become a man of

consequence, and accelerate his career, the favour of others was unfortunately a more effective expedient than his own intrinsic talent. Now, ought Bacon to have avoided a practical career altogether? He was forced to pursue it by his inclinations, by his temperament, by the force of circumstances. At first he had to contend with the greatest obstacles; even his nearest relatives, the powerful Burleighs, threw impediments in his way, and long held him down in a dependent position. If Bacon would not give up his practical aims, and vanish into a life of seclusion, repugnant to his nature, he must seek for assistance,—totally distinct from his own talents,—in the influence, protection, and patronage of others, and these he could not secure without courtly pliability,—without becoming a serviceable tool in the hands of the powerful.

Here Bacon entered upon that hazardous and slippery path, which, though it brought him to the highest posts of honour, led him also into a multitude of perplexities and embarrassments, and at last caused his precipitate fall from the summit of prosperity to the depth of destruction. It was a hard and steep road that Bacon had to travel, as he rose from the poor barrister to the Keeper of the Seals and Lord Chancellor of

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England; from the unwearied suppliant to Baron Verulam and Viscount St. Alban. Nor did he find any difficulty in accommodating himself to the windings of the path, and in sacrificing so much of his moral independence as circumstances required. Nature had not formed him of stubborn material. He was easy and pliant to the highest degree,—made on purpose to guide himself by the course of circumstances, of which he took a very clear view. The *temporibus servire* corresponded to his natural temperament, and to the tone of his philosophy, of which the fundamental principle was to follow the times by a mode of thought really conformable to the times. Altogether, Bacon did not regard life with the conviction that it was a problem of eternal import, to be solved according to a moral rule, but rather as a game that could only be won by quickly-devised and judicious tactics. There are characters who *affect* to be easy, pliable, and subservient to the will of others, that they have the greater chance of becoming the reverse of all this; who apparently allow themselves to be governed, that their own rule may be rendered the more secure, and like the cunning pope seek the keys of power with stooping heads. Among these hypocritical and really

rated. His ambition was of a yielding kind, and his natural honesty came often into collision with his political shrewdness. To-day, in conformity with his own convictions, he delivered a patriotic speech in Parliament against the subsidies*, and having thus offended the queen he did all he could to appease her wrath. He repented that he had made the speech; and we may be fully convinced that he felt unfeigned sorrow on account of an impolitic act that was so much in the way of his plans. On another occasion he toiled to save the man who had been his benefactor; but when he saw that the queen's good graces were at stake, he allowed his friend to fall, having only sought his favour because he had been the favourite of the queen. He always stooped as soon as he saw that he might knock his head by keeping it upright. This spectacle of so great a mind in such a wavering and undignified condition is far from edifying; but even here we may find a trait that accompanies Bacon's character through all his wanderings, that belongs to his peculiarities, and has its foundation in his inmost nature;—I mean an *extraordinary facility* in helping himself, under

* The speech referred to was made by Bacon in 1593 (1592 ? I. O.), as representative of Middlesex. Author's note.

any circumstances, in passing over the difficulties of a route, and hurrying on as if nothing of any moment had occurred, as if no mark of evil were left in his track. In him every unpleasant sensation was easily smoothed down, every loss, even moral loss,—nay, even that last of losses, the loss of a good name, was easily compensated. His life and his writings make upon us the same impression, that this man could find nothing difficult either to endure or to execute. In such a mind, even this facility is a species of strength, a proof of indestructible energy and vital power; a *natural elasticity*, which indeed appears like a weakness, whenever it encounters opposition. David Hume was right when he missed in Bacon that firmness of character which we call the moral power of resistance. We know of no philosopher more *elastic* than Bacon. He possessed to the highest degree the power and the impulse to expand himself beyond all bounds, but the power of resistance he lacked; he yielded to a pressure, and allowed himself to be driven into a corner by the overwhelming force of circumstances. He could augment and diminish, with the same natural facility, without being affected, either in his higher or his lower position, by an excessive sensibility, which in the

other would have too painfully depressed him. Hence it was that the man, who excelled all others in intellectual power, and imprinted a new form of mind upon his age, at the same time presented a soft material capable of receiving the impression from any hand that happened to be powerful. This elastic power constitutes, as it were, the type of his individuality, in which all his politics, his virtues as well as his foibles, harmonise with each other. Here we can perceive that his character is consistent with itself. From this point we explain the peculiar turns of his life, his vicissitudes, even his extremest aberrations.

It is perfectly evident to us that such an intellectual power, fitted as it was to strive towards a great end, and at the same time to penetrate into *minutiæ*, could not fail to produce extraordinary results in the region of science; that it was especially made to awaken a new life in this region, and that, above all, it corresponded to Bacon's own scientific tendency, namely, the progression from particulars to general laws. If we imagine the same power placed in the midst of social intercourse, we find that this rich, versatile mind, affable to every person, accessible to every form of life, contains within itself all the talents that constitute the agreeable companion. Bacon possessed by nature

all those qualities which have a right to shine in society; he united the weighty with the light, not by deliberate art, but by dint of natural grace. His command over words was perfect, both in public orations and in private converse. According to the testimony of Ben Jonson, Bacon was an orator whom one never grew weary of hearing. But this very power, which in science and in social life finds so brilliant and lofty an expression, acquires quite another aspect when its acts are of a *moral* kind; the moral element is for such a form of individuality the most uncongenial and the most dangerous. There is *no elastic morality*; and Bacon's moral nature was as elastic, as facile, as completely directed towards practical ends, and as compliant with circumstances, as his intellect. It quite accorded with the key-note of his individuality. Here is the perceptible harmony of his character, which has often escaped notice, or (as in the case of Mr. Macaulay) has been missed altogether. We see in Bacon's moral character, as compared with his intellect, not a distinct being, but only the shadow of his individuality, which grew larger as its substance increased in power and importance. Elastic morality is lax. Moral virtue demands, above everything, a firm, tough, obstinate power of resistance, for it consists in a victorious struggle

with the allurements and temptations of life. If this power of resistance has its fulcrum in the natural disposition of the individual, it is a talent. Now this moral talent was wanting in Bacon's nature; and the virtue that corresponds to it was therefore wanting in his life. All the moral blemishes that disfigure his life have their real foundation in this absence of virtue; in this natural want of resisting power; in that mental facility which gave such extraordinary animation to his scientific, and so grievously crippled his moral energies. Bacon's life has always appeared to me the strongest proof of the correctness of Leibnitz's definition, according to which evil is the absence of good, and vice therefore is a moral weakness. Bacon was not vicious by nature. His moral disposition was the reverse of diabolical. It was in the highest degree facile, and therefore frail; through all the windings of his life it became no worse than it was by nature;—it was easily corruptible. Indeed, when we see the general corruption by which such a character was surrounded, we can scarcely wonder that it fell into sad perplexities and aberrations. There was no melancholy element in his disposition to render him more sensitive to the pressure of life; he could bear his lot easily; and even from that terrible blow that gave a mortal wound

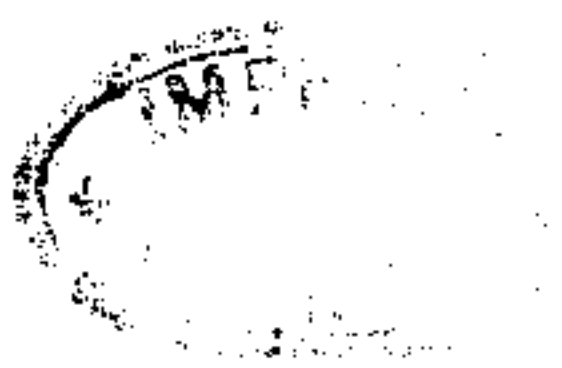
to his honour, he recovered with astounding rapidity, and thenceforward, in voluntary seclusion, devoted all his powers to science. His feelings corresponded to his temperament. He had none of those violent and deep emotions that excite the soul, and carry it forcibly along; never did love or hatred wholly overpower him; his love was a cool inclination, his hatred a cool dislike. No mark of friendship or devotion could move him to give his whole heart; and, on the other hand, he was just as little roused by enmity. It was easy for him to abandon and even to persecute a fallen friend, for the sake of gaining the royal favour, or to contract a marriage, which offered no charm but wealth. Violent passions were as alien from his heart as the fallacies, which he termed "idols," were alien from his intellect. His was not a cold, but a cool nature, whose likes and dislikes kept themselves within the limits of equanimity. Thus, without love or devotion, he could be benevolent, affable, and forgiving; and, without hatred or malice, he could act as an enemy. To do him justice, we must say, regarding him from both sides, that his friendship was indeed without fidelity, but that, on the other hand, his enmity was without bitterness; that he took up and wielded both with equal facility; and that

the very characteristic of his mind which appeared like infidelity and ingratitude where a friend was concerned, looked like magnanimity and clemency where an enemy was the party in question. He could be ungrateful to his benefactors, but he could not be vindictive to his foes. He had none of those passions that belong to the *genus* of love, but he was equally free from the opposite emotions of hatred. Instances might be cited where Bacon acted without feeling, but it cannot be proved that he was ever prompted by envy. He could as easily close his heart to the ingratitude, as he could open it to acknowledge the merit of others. So right was Spinoza, when he called envy the converse of sympathy. If there were a thermometer to measure the intrinsic force of human passions, we should find, in the case of Bacon, that the degree of warmth belonging to his heart stood very close to zero. His practical ends were to him of more value than the dictates of his own feelings. When both were in harmony, we might be certain to find in Bacon one of the most amiable of men; but the least collision would at once destroy the equilibrium of his natural benevolence. If he were compelled to make a choice between the practical objects of his life and the promptings of his heart,—between his interest and his friend,

—we may be perfectly sure that Bacon would always have given the preference to the former. He attempted, indeed, to effect a reconciliation between them, and would have been much pleased if his experiment had succeeded; but as soon as it had failed, and Bacon saw the impossibility of success, he made up his mind to sacrifice his friend, and this sacrifice was made with small compunction.

We thus have a thorough explanation of the saddest episode of Bacon's life,—of the part which he played as counsel for the Crown against the Earl of Essex. Here was the hardest collision into which his interests could be brought. It was a collision not between duty and inclination, but between selfishness and friendship. Essex had loved him with passionate affection, and had loaded him with a multitude of favours, which he had repaid with as much devotion as was compatible with his passionless temperament. What he loved in Essex was not so much the friend as the powerful favourite, who was of service to him. The favourite fell, and Bacon's friendship was put to a test that it could not stand. It failed in a manner that unhappily was as much in accordance with Bacon's character as it is repulsive to our feelings, notwithstanding its consistency with our explanation of his moral disposition. He

really made every effort to save Essex without danger to himself. The attempt failed; the passionate and unlawful acts which the reckless Essex allowed himself to commit made this absolutely impossible. Bacon was forced to make a choice between him and the queen. He made such a choice as was consonant to his nature. It was the queen's will that he should himself support the prosecution and publicly defend the execution of Essex after it had taken place. He *did* support the prosecution, he *did* write the defence; in both cases plainly showing that he did not act in accordance with his feelings, but had still only one motive, that of pleasing the queen. When she desired him to defend, by a written statement, the execution that had taken place, Bacon expressed his gratification that Her Majesty had "taken a liking of his pen." When under the government of James I. the friends of Essex regained their influence, Bacon did everything to obliterate the memory of this proceeding. He heartily congratulated the Earl of Southampton on his liberation from the confinement to which friendship for Essex and participation in his fortunes had brought him; and the written avowal of Bacon on this occasion was very characteristic and very true. He assured the Earl that the change of the throne had wrought in



him no other change than this, "that he could be *safely* that to him now which he had *truly* been before." In these few lines Bacon has depicted himself with the most *naïve* candour.

We see how much this moral character was subject to external influences, how fitted it was to conform itself to every change of circumstance. This moral pliability is not far removed from *venality*, which, indeed, it becomes as soon as motives are derived not from the conscience, but from the force of external relations. Devoid of rigid conscientiousness, and also devoid of those strong passions which rule the mind after a fashion of their own, such characters constantly succumb to the corrupting influences from without. On these alone does it depend what form the venality will take, and to what a degree it will mount. And the circumstances amid which Bacon lived as a powerful and likewise complaisant tool caused his natural venality to take the grossest form of bribery, and to be heightened to actual crime. There was nothing in his moral disposition that he could oppose to such pernicious agencies. He subjected himself and his high position as Lord Keeper of the Great Seal of England to the power and influence of a courtier. Because Buckingham exercised the strongest influence over the king,

so was his influence irresistible to Bacon. It was impossible to renounce the support of the influential courtier, and as little could Bacon guide the inconsiderate man by his own superior views. He therefore yielded to him, and became an accomplice in the wrongful acts by which Buckingham enriched himself, allowing him to grant patents for hard cash and sell monopolies, which did manifest injury to the country. What was still worse, he tolerated the interference of the royal favourite in his own judicial acts, and the decisions which he subscribed often emanated from Buckingham. Bacon knew well enough that corruption of the legal tribunals is one of the worst evils that can befall a state; nevertheless he allowed the Crown and its officers to interfere in suits, and to secure the favour of the judges for itself or its clients; he actually *did* that which, with his own correct views, he never should have permitted; he allowed himself to be bribed, and sold his decisions. By these illegal means he is said to have gained a rich booty; his enemies estimated his spoils at 100,000 pounds. This rapacity did not arise from grovelling avarice, but from a reckless love of magnificence. Bacon, as far as his own person was concerned, was moderate and abstemious; but he liked to keep up a magnificent establishment and make a bril-

liant figure in society. Luxury offered fascinations which he could not resist; his rash expenditure exceeded his means, and thus he loaded himself with a weight of debt which he could only lighten by means of unlawful and unjustifiable gains. Here Bacon and his fortunes appear in a truly pitiful light, namely, with the stamp of mere vulgar recklessness upon them. To a life in which luxury, debt, and dishonesty, always logically enough connected, appear in intimate union, we attach, according to the laws of analogy and experience, a character that has nothing in common with greatness and independence of mind. Nor did the pecuniary difficulties of Bacon begin with the lustre of his official position. It appears that he always had a taste for immoderate luxury. At any rate, we know that before the episode with Essex, a goldsmith caused him to be arrested in the street for debt.

The fate of Bacon came upon him as the Nemesis of some hero of antiquity. It allowed him to rise to the highest pinnacle of felicity, that it might thence strike him down with rapid and terrific blows. In a few moments the proud edifice of his fortune, the edifice which he had carefully constructed with the toil of years, lay before him a disgraceful ruin.

Under James I. he had, by the favour of that

monarch, mounted the highest steps of the state ladder. Knighted on James's accession to the throne, Bacon became, in 1604, King's Counsel with a salary, in 1607 Solicitor-General, in 1613 Attorney-General, in 1616 (through the influence of Buckingham) Counsellor of State, in 1617 Lord Keeper of the Great Seal, and in 1618 Lord High Chancellor of England.* While in London he led a brilliant life at York House. His vacations he devoted to a Tusculan leisure at Gorhambury, where he occupied himself with literary labours and gardening. Here he kept up a scientific intercourse with several persons, including Thomas Hobbes, whose vocation it was further to carry out the Baconian philosophy, and whom Mr. Macaulay terms the most "vigorous and acute of human intellects." When on the summit of his political career he was further elevated, with great ceremony on the part of the Court, to the dignities of Baron of Verulam and Viscount St. Alban. He held the highest state office in England; and the publication of his *chef-d'œuvre*, the "Novum Organum," in 1620, stamped him as the first philosophical writer of Europe. This was the moment when Bacon

* The above dates are from the note to Dr. Rawley's life, in Mr. Spedding's edition. Dr. Fischer's dates are not quite the same.

stood upon the culminating point of power and felicity, and was justly respected and admired by the whole world.

Three days after his investment with the title of Viscount St. Alban had taken place with all solemnity, a new parliament assembled. The public grievances were discussed,—the selfish and mischievous grants of monopolies and patents, and above all the abuses in the law-courts. The House of Commons elected a Committee to investigate these abuses. On the 15th of March, 1621, the president of the Committee* reported that the person against whom the charges were brought was no less a person than the Lord Chancellor himself, “a man,” he added, “so endued with all parts of nature and art, as that I will say no more of him, being not able to say enough.” The prosecution was carried on; the cases of bribery became more and more numerous; the articles of the charge were twenty-three in number. A copy of them was sent to Bacon that he might defend himself; and at last, all evasion being impossible, he sent to the House of Lords a written answer, which opened thus:—“Upon advised consideration of the charge, descending into my own conscience, and calling my memory

* Sir Robert Phillips.—J. O.

to account so far as I am able, I do plainly and ingenuously confess that I am guilty of corruption, and do renounce all defence, and put myself upon the grace and mercy of your lordships." Overwhelmed with shame, the unhappy man shut himself up in his room, and when a deputation of the lords waited upon him, he besought them "to be merciful to a broken reed." His confession of guilt was dictated not so much by contrition as by policy, for the king, who could not save him, advised him to declare himself guilty. He was sentenced to imprisonment during the king's pleasure, to a fine of 40,000*l.*, with the additional punishment that he was to "be for ever incapable of any office, place, or employment in the state or commonwealth; and never sit in parliament, nor come within the verge of the court."* The sentence was more severe than the judges, who felt both admiration and pity for the offender, and indeed it was only carried into execution so far as form required. After an imprisonment of no more than two days he was liberated by the king, the other penalties were also remitted, and he might even have resumed his seat in the House of Lords in the next session of parliament. However, he did not again

* In the original this addition is briefly expressed by the words: "Bürgerlicher Tod."—J. O.

make his appearance in public life, but passed the remainder of his days in solitary devotion to science among the woods of Gorhambury.

If we now compare Bacon's moral disposition with his scientific character, we shall find between the two not a puzzling contradiction, but, on the contrary, a natural analogy ; only the very peculiarities that were injurious and perilous with respect to his practical life were advantageous to his scientific pursuits. As the elements of science and life are distinct from each other, the expressions of the scientific and the moral character must be likewise different, even where they both agree in their common source. To certain temptations the mind that seeks after truth is never exposed. Certain rewards are beyond the power of science to bestow, and for such rewards the scientific character cannot think of acting. It is easy to understand that an excessively practical intellect, a mind that thirsts after power and distinction, will become selfish in the affairs of worldly life, and that such a mind, if endowed largely with pliability, scantily with power of resistance, will not shun crooked paths in order to attain its end, and will at last purchase worldly gain at any amount of moral loss. But put such a mind, with the intellectual force belonging to it, on the path of science ; here also it will exhibit the same

traits of character that generally determine the form of its individuality, but without the dross with which it becomes sullied in the impure element of worldly life. The element of science is in itself pure. In science there are no such vices as selfishness and venality. To transplant a character from the moral into the scientific element, we must leave out all that will not admit of this operation,—every merely moral phenomenon.

Such a phenomenon, in the case of Bacon, is the selfish and feeble character of his will. How could this peculiarity find a scientific expression? What aliment could it derive from science? Mr. Macaulay says correctly enough:—"In his library all his rare powers were under the guidance of an honest ambition, of an enlarged philanthropy, of a sincere love of truth. There no temptation drew him away from the right course. Thomas Aquinas could pay no fees; Duns Scotus could confer no peerages. The Master of the Sentences had no rich reversions in his gift." If we set aside the difference of the elements in which Bacon's scientific and moral character move, the conformity between them strikes us at once. Even science itself is embraced by Bacon in a sense that indubitably expresses his whole moral peculiarity. The harmony is obvious. To prove the assertion of an original philosopher of our own country,

that it is the will that produces the understanding*, I would cite Bacon as an example. His science harmonises altogether with the key-note of his individuality and his will. He directs it, as he directs his life, to practical ends; would bring it into a new and fruitful combination with worldly life, from which it has hitherto been separated. All his philosophical plans are designed to *enrich* science; to render it mighty, respected, influential, generally useful. It is to be a power among men, — a beneficent power, and therefore universally revered. But science can only enrich itself with knowledge; can only become powerful when this knowledge is useful, practical, efficacious. Let us, then, imagine the idea of Bacon's life transplanted into the region of science: to what could it direct its efforts but to the acquisition of a vast store of useful and potent knowledge? How can this treasure be acquired but by a dexterous intellect, with an eye to real life, and an aptitude for worldly experience? Instead of the riches which he seeks, Bacon finds in the science that exists its very opposite; the deepest poverty, scanty knowledge, and that empty and unserviceable, while, to complete the general wretchedness, there is an infatuated belief

* Arthur Schopenhauer must be the philosopher here intended. — J. O.

that all this is marvellous wealth. If Bacon, therefore, is to carry out his own will in science, no other course is left, but to deprive the science that already exists of its idle conceit, and, since it cannot become richer than it is, to erect a *new* profitable science in its place. Thus arises in his mind the idea of a scientific *Instauratio Magna*. To enrich science he must reform it, open new sources to it, thoroughly change the mode of thought to which it has hitherto been accustomed. The tree of knowledge, which Bacon found, had ceased to bear fruit; nothing but dry leaves could be shaken from its branches, and with this occupation, as Bacon saw, the learned by profession employed themselves to their own infinite satisfaction. Bacon had made himself acquainted with scholastic learning, and to the question, as to what he had found in the books of the schools, he replied with the answer of Hamlet to Polonius: — “Words — words — words.” This dead, antiquated word-learning was, if he could carry out his intent, to be succeeded by a new, fruitful science, springing up with youthful life.

From the character of Bacon we may infer in what sense, and in what sense only, *he* could reform science. Open to the world, greedy for honour and distinction, full of interest for pub-

lic life, as he himself was, he wished to make science think practically, to direct her understanding to realities alone, at the same time rendering this understanding so calm and subtle that it could contemplate things without prejudice, and investigate them properly. For this purpose science required a guiding method. Such a method Bacon laid down. It required a number of expedients to overcome the difficulties of the unwonted route. Bacon discovered these expedients with his own peculiar adroitness; he gave his theory the movable, pliable form that could entirely accommodate itself to circumstances, always discover the assailable side, find the proper handle for every case. This scientific tendency and the genius of Bacon were completely made for each other. I say again: the science, which Bacon proposed to himself, was highly favoured by his moral constitution. With respect to the passions he was in a position of natural and therefore *happy neutrality*. His mind, never misled, never dazzled, never abandoned to the sway of exclusive affections, never chained to objects of the heart, could, with all the deeper interest and with all the greater clearness, direct itself to a comprehensive whole. His cool heart supported his penetrating intellect. The science that Bacon contemplated required above everything a sober,

cold intellect, to which the coolness of his affections was highly favourable. In science he would only allow the anatomical analysis of things; the operation of the understanding, that armed with an instrument palpably enters into the interior of a subject.* On this account he necessarily smothered all feelings connected with the tastes or the affections. It may be remarked, by the way, that Bacon even desired vivisection for the interests of science.

In a word, *Bacon's character was as practical, as cool, as supple as the science which he desired and prescribed for his age.* All those personal peculiarities which cast so many shadows upon his life appear as so many bright places in his science, for which he was exactly fitted, not only by his head, but by his heart. A man's merit must never be judged without his brains, nor the brains without the man. The lines which in Bacon mark the direction of his practical life and his science are not divergent, but parallel. The same man who, being at first a poor barrister, could make himself a powerful Lord Chancellor, also made

* The German word is "object," but this is one of the cases in which that word is best rendered in English by "subject," to which it generally stands in direct contradiction.—J. O.

at first, a disciple of the Aristotelian philosophy as taught by the schoolmen. In the spheres both of politics and of science his aspiring genius was early manifested. When in 1577*, a boy of sixteen, he quitted the University of Cambridge, he already felt disgusted with the scholastic philosophy. We do not mean to maintain that he then saw his way plainly before him, and had clearly apprehended his plans of reform. A paper which might have furnished information on the subject is, unfortunately, lost. The later writings with which we are acquainted show that Bacon, at least to outward appearance, used great caution in abandoning the scholastic philosophy. In his "*Cogitata et Visa*†," which was the first sketch of his "*Novum Organum*," Bacon appeared, for the first time, as the open and decided adversary of the scholastic philosophy, while the spirit that appears in the first sketch of his second great work, "*De Dignitate et Augmentis Scientia-*

* According to Mr. Spedding, Bacon left Cambridge 1575.—J. O.

† Published in 1612. The work "*De Sapientia Veterum*" appeared in the same year. The chronology of Bacon's works is sometimes uncertain, and is so in this case. We take Lord Campbell for our guide.—Author's note. [The "*Cogitata et Visa*" was sent to Bodley in 1607, as can be proved by a letter of Bodley's now extant.—J. O.]

rum,"* although foreign to the system of the schools, is not so unequivocally hostile. Even this trait is truly Baconian. He approached his goal step by step, looking far, and expressing himself cautiously. The part that Bacon intended to play in science, and the strong feeling he entertained of his own scientific power long before he boldly expressed his views, may be gathered from one of his letters to his uncle, Lord Burleigh, who probably, from selfish motives, did not assist him in his political career. He writes in the year 1591: "I confess that I have as vast contemplative ends as I have moderate civil ends, for I have taken all knowledge to be my providence (province?); and if I could purge it of two sorts of rovers, whereof the one with frivolous disputations, confutations, and verbosities; the other, with blind experiments and auricular traditions and impostures, hath committed so many spoils; I hope I should bring in industrious observations, grounded conclusions, and profitable inventions and discoveries, the best state of that

* The first outline of this work bears the title, "The Two Books of Francis Bacon of the Proficiency and Advancement of Learning, Divine and Human," and was published in 1605. The Latin translation, in which the work was considerably enlarged, appeared in nine books, under the title given in the text, in the year 1623.—Author's note.

providence (province?).” What Bacon always desired in science is here expressed in a few words. His plans were as sober and practical as was possible in the region of science. But what *thinker* to this day can escape the imputation of being a *dreamer*? In such a light did Bacon, who wished to awaken science from her long dream, appear to the Burleighs; in such a light they represented him to Queen Elizabeth.

Bacon’s political career exactly corresponded to his progress in science. His efforts in both were directed to great ends; in both he started with far-seeing projects, and achieved brilliant results. During a tour in France, whither, after leaving Cambridge, he accompanied the English ambassador*, he wrote, at the early age of nineteen, a treatise on the state of Europe (“De Statu Europæ”). In 1580† the death of his father called him back; and soon afterwards he drew up his first philosophical sketch, which has not been preserved, and which bears the pompous title, “Temporis partum Maximum.” By his “Essays,” published in 1597, he became one of the most widely read and popular authors in England. In the reign of James I. he rose in

* Sir Amyas Paulet.—J. O.

† According to Mr. Spedding, in February, 1578-9.

philosophical importance as he rose in office. The sketch of his "*Novum Organum*," entitled "*Cogitata et Visa*," appeared in the year when he was made Attorney-General, and the "*Novum Organum*" itself crowned his philosophical career at the very moment when his political career had ended with the dignity of Chancellor.

If Bacon had a passion which sincerely and powerfully occupied his mind, it was the passion for science alone. Science was the only friend to whom he remained true; she accompanied him through his restless and busy life, and to her did the ever-active man return in the hours of his leisure. The thirst for science was his greatest ambition; this alone he could never satisfy; and its gratification constituted the real purpose and the purest felicity of his life. This passion consoled and elevated the fallen man in his misfortunes after all his other ambitious efforts were hopelessly thwarted, and it remained faithful to him till death. Science was Bacon's last destiny, and even death bore witness to her fidelity. He died on the morning of Easter Sunday (April 9th) 1626, in consequence of a physical experiment*;

* Thinking that flesh might possibly be preserved as well in snow as in salt, he alighted from his coach at the bottom of Highgate Hill, while snow was lying on the ground, and buying

and one of the first sentences which, with his dying hand, he wrote to a friend, was this: "The experiment succeeded excellently well."

a hen at the house of a poor woman, made the experiment on the spot. The snow chilled him, and not being able to return to Gray's Inn, where he then resided, he was taken to the Earl of Arundel's house, where he was put into a damp bed. The letter cited above was addressed to Lord Arundel, at whose house he died.—J. O.

CHAP. II.

INVENTION AS THE PROBLEM OF THE BACONIAN PHILOSOPHY.

WE hasten to protest against an error respecting the Baconian philosophy that is widely diffused, and has taken deep root in Germany especially. The judgment formed of Bacon by the majority is to this effect, that he was a very fertile and suggestive, but by no means a consistent* thinker; that the constitution of his philosophy is deficient in rigidly scientific connection and in logical sequence of its different parts, and that, perhaps, this deficiency arises from internal causes. If by *consistency* they mean *systematic* form, they are quite right in denying it to the Baconian philosophy. There are philosophies that neither can nor are intended to be systems; and the Baconian is one of them. But *system* and *consistency* are by no means identical. The systematic course of ideas is confined within narrow

* "Kein consequenter Denker." The word "consistent" is too strong to be an equivalent for "consequent," but its exact force in this place will, I trust, be apparent from the context.
—J. O.

limits, and may be compared to a movement in a circular track; the (merely) consistent course, while it admits of logical deduction from its premises, can as well return upon itself, as admit of continuance in an infinite line. And this last is the course designedly taken by the Baconian philosophy; it purposely avoids the systematic circle; but on the path it has chosen it pursues a logical and well-connected chain of thought. The very fact that this consistency in the Baconian philosophy has been so little understood and appreciated, renders it our especial duty to remove all doubts respecting its logical soundness. Two faults, that have been commonly committed in forming notions respecting Bacon, have led to the errors against which we are now contending. One fault consists in that hasty knowledge which ever dwells on the surface of the Baconian philosophy, and does not penetrate to its centre. This surface presents, indeed, a motley aspect. The second fault consists in beginning with a wrong point of view when following out Bacon's course of ideas. Thus contemplated, the sequence certainly looks arbitrary enough. But of what sort is the contemplation?

Every rigid course of thought is determined by two points, that from which it proceeds, and that to which it tends; the former is the starting-

point, the latter is the goal. The question is, which of these two points is first *given*, first apprehended in the mind; whether the thought first settles its starting-point, and then by a logical progress seeks its goal, or whether it first takes a clear view of its goal, and then considers which road it must pursue, and from what point it must set out? Logical thought is possible in both cases; but in the former case the mode of thought is different from that in the latter. There, my first thought is the premiss, and the further course of ideas consists solely of legitimate conclusions. Here, my first thought is the goal, and with respect to that my premiss is framed. Here I reason thus: this is my goal which stands as something necessary, and to be attained at all events; now such and such are the means which will bring me to that end, and these means themselves form a chain, the first link of which is my starting-point, and in this sense my premiss. Thus I reason from the goal to the starting-point. If my conclusions are rightly drawn, the course of my ideas is unquestionably logical (*consequent*), but its order and its direction are diametrically opposite to those of the other course of ideas, which from the given starting-point proceeds to the not-given goal. Both modes of thought are legitimate, but they differ

both in course and in tendency. Each has its own point of view, and a method depending upon it. If the thought tends to a principle, its guiding-point is an *axiom**; if it tends to a goal that is to be attained, its guiding-point is a *problem*. Axioms suggest deductions; problems require solution. In the one case, I ask, what will follow from this principle? In the other, how shall I solve this problem? In both cases logical and methodical thought is required. The first method may be called that of *deductions*, the second that of *solutions*; the former is the *synthetic*, the latter the *analytic* method. For every deduction is a synthesis, every solution is an analysis.

Now I maintain that a mind whose first thought is not a principle, but a problem to be solved, and which begins by proposing to itself a goal that is to be reached,—I maintain, I say, that such a mind must think *analytically*; and in this its natural course of ideas must be followed and represented by us. First, it apprehends the problem,—the goal that hovers before it in the distance,—then the means of solution in a regular sequence down to the first link, which offers the scientific starting-point for the solution itself.

Such a mind was the mind of Bacon. Not a

* “Grundsatz.” Literally, “fundamental proposition.”—J. O.

principle, but a problem constitutes the first thought and guiding-point of his whole philosophy. He first clearly apprehends his goal, then he reflects on the right means for infallibly attaining it. Through the whole course of his ideas he never turns his eyes from this goal, but always keeps it steadily in view. This setting up of goals belonged to the nature of his thought, which was therefore thoroughly analytical in its method. Bacon himself thought as he wished science in general to think; that is to say, he analysed things. His mind was made not to deduce from principles, but to solve problems; and as Bacon thought, and indeed could alone think, in consequence of the peculiarity of his mind, so will he be regarded and represented by us,—as an analytical thinker. Every other mode of representing him is erroneous. His analytical reasoning is in the highest degree close and consistent. To discover in Bacon this character of a logical thinker, we must first suppose the problem with and in his mind, then seek the means of solution; first set up the goal, then discover and smooth the road to it. He is wrongly understood when, as is commonly the case, his thoughts are set forth synthetically, just as though the mode of his thinking resembled that of Descartes or Spinoza. We cannot give a synthe-

tical representation of an analytical thinker without perverting his close and logical sequence of ideas into one that is arbitrary and unconnected, and thus greatly diminishing his philosophical worth; for it is obvious that the analytical reasoning from such and such a proposed end to such and such means of attaining it is perfectly close and legitimate; while, on the other hand, the synthetical reasoning from the means to the end will always appear loose and doubtful. The end despotically demands the appropriate means; on the other hand, the means can lead to many ends, and why should I infer one in particular? Such an inference would be arbitrary. If we assume that Bacon proposed to himself a problem that he could only solve by experience, and indeed only by one kind of experience, we must concede that he was perfectly justified in elevating this to a principle. But if, on the other hand, Bacon had set out from experience as a first principle, innumerable roads might have led him from this point to innumerable ends. Why, then, did he choose this one particular road, and this one particular end? Here what has just now appeared a necessary thought becomes a mere arbitrary caprice; and it is as a necessary sequence of thought that the Baconian philosophy is to be comprehended and exhibited. This is impossible, so long as it is synthetically

treated; and that which to Bacon himself was an inference or an intermediate proposition is laid down as a fundamental principle. It is useless to repeat over and over again that Bacon set out from experience. We may just as well say that Columbus was a navigator, while the principal point is that he discovered America. Mere navigation was as little the leading thought of Columbus as mere experience was the leading thought of Bacon.

I. THE BACONIAN POINT OF VIEW.

DISCOVERY AND INVENTION.

What is the point of view that commands the Baconian philosophy from the beginning to the end? Bacon found this point of view by comprehending the problem of his age, and appropriating it to himself. This age was shaken to its very vitals by those reformatory forces that had been awakened in the preceding centuries. A revolution had made its appearance, which brought with it a change, both internal and external, in human affairs, and introduced a crisis in civilisation, through which tendencies and aims were set before man totally different from those which he had previously followed. With his

penetrating intellect, Bacon comprehended the altered physiognomy of his age; he sought for the ultimate causes of the change, and wished to make philosophy accord with it. For the new life and its impulses he wished to find a new corresponding logic. Philosophy professes to be the love of truth. Bacon would suit this truth to the times. "It is the greatest weakness," he says, "to attribute infinite credit to authors; but to refuse to Time, the author of all authors, and therefore of all authority, its own prerogative. For truth is rightly called the daughter of Time, not of authority."* Again: "The opinion which men cherish of antiquity is altogether idle, and scarcely agrees with the term. For the old age and increasing years of the world should in truth be regarded as antiquity, and these are to be attributed to our times, not to that younger period of the world, such as it was in the days of the (so-called) ancients. For that period, with respect to ourselves, was ancient and older; with respect to the world itself, modern and younger."†

* "Summæ pusillanimitatis est authoribus infinita tribuere, authori autem authorum atque adeo omnis authoritatis, Tempori, jus suum denegare. Recte enim Veritas Temporis filia dicitur, non Authoritatis."—*Nov. Org.* I. Aph. 84.

† "De antiquitate autem, opinio quam homines de ipsa foveant negligens omnino est, et vix verbo ipsi congrua. Mundi enim senium et grandævitas pro antiquitate vere habenda sunt; quæ temporibus nostris tribui debent, non juniori ætati mundi, qualis

The world in course of time has become older, richer, more comprehensive; science should be raised to suit this advanced state of the world. The limits of the material world are extended, and the intellectual world should not remain within its former boundaries. Thus the problem proposed by Bacon is this:—So to extend the intellectual world (*globus intellectualis*) that it may be able to comprehend the material world, such as the latter has become. “It would be dishonourable to man if the regions of the material globe, viz. the lands, the seas, and the stars, should be so immensely revealed in our age, and yet the boundaries of the intellectual world should be confined to the discoveries and straits of the ancients.”*

What now were the powers that set this new life in motion, and put the middle ages “out of joint?” What were the mighty changes that stamped Bacon’s age as new, and fundamentally different from all that had preceded it? The political, scientific, and geographical conditions of the world

apud antiquos fuit. Illa enim ætas, respectu nostri antiqua et major, respectu mundi ipsius nova et minor fuit.”—*Nov. Org.* I. Aph. 84.

* “Quin et turpe hominibus foret, si globi materialis tractus, terrarum videlicet, marium, astrorum, nostris temporibus immensum aperti et illustrati sint; globi autem intellectualis fines inter veterum inventa et angustias cohibeantur.”—*Ibid.*

had one after another experienced a thorough reform. The material and intellectual position of mankind had become quite different since new expedients had removed the ancient limits of war, science, and navigation. The reform in the art of war was based upon the invention of gunpowder; in science upon the invention of printing; in navigation upon the invention of the compass, without which the discovery of the new world would have been impossible. *Discovery*, therefore, which was itself dependent upon invention, constituted the civilising impulse of that new epoch, the spirit of which had penetrated Bacon. Here Bacon discovers the secret of his time, its essential difference from antiquity and the middle ages — the goal to which science must henceforth be directed, and which philosophy should alone consider.*

The inventive spirit of man had fashioned the new age. Hitherto this had been kept down, either because it was lightly esteemed, or because the means of liberating it had been wanting — because there was no intellect to comprehend and regulate it. This, then, was the problem apprehended by Bacon and proposed to his age: — The subjection of science to the spirit of invention, and the liberation of this spirit from the chance

* Compare "De Augment. Scient.," Lib. V., Cap. 2.

by which human inventions had previously been governed. He would establish a new logic, corresponding to the spirit of invention, by which man might deliberately and therefore more frequently achieve what he had previously achieved, as it were, by a mere chance, and therefore but seldom; that he might no longer *find*, but *invent*.* Exactly thus does Bacon formulise the problem of his philosophy; thus does he define it in his “*Cogitata et Visa*,” the concise programme to his “*Novum Organum*.” Chance, which has hitherto been the cause of inventions, is to be changed into design; art (*ars*) is to take the place of luck (*casus*). “He thought that if many discoveries chance to men not seeking them, but otherwise employed, no one could doubt that if the same men were to seek discoveries, and that not by fits and starts, but by rule and order, many more things would necessarily be discovered. For though it may happen once or twice that some one by chance hits upon what has hitherto escaped him, while making every effort in the inquiry, yet without doubt the contrary will happen in the long run. For chance works rarely, and tardily, and without order; but art constantly, rapidly, and in an orderly manner.

* “*Nicht finden, son dern erfinden*.” There is an antithesis in the German words which cannot be reproduced in English.
—J. O.

From those inventions also which have already been brought to light, he thought it might be most truly conjectured respecting those that are yet hidden. But of these, that some were of such a kind that before they were discovered surmises concerning them would not readily occur to any one's mind. For men commonly guess at new things by the example of the old, and the fancies they have derived from the latter; which mode of conjecture is most fallacious, since those things that are sought from the fountain-head do not necessarily flow through the accustomed channels. Thus, if some one before the invention of cannon had described it and its effects, and had said that a certain thing had been discovered by means of which walls and the strongest fortifications might be shaken and battered down from a long distance, men would certainly have formed many and various conjectures as to how the power of missive engines and machines might be multiplied by weights, wheels, and the like; but the notion of a fiery wind would scarcely have occurred to any one, inasmuch as none of them could have seen an example of the sort, except perhaps in an earthquake or thunder-storm, which they would have rejected from consideration, as things not to be imitated. In the same manner, if before the invention of silken thread some one had talked in

this fashion, affirming that there was a certain thread useful for dress and furniture, which far surpassed linen and woollen thread in fineness, and at the same time in strength, and also in gloss and softness, men would at once have begun to guess some sort of vegetable silk, or the more delicate hair of some animal, or the feathers and down of birds; whereas if any one had dropped a hint about a worm, he would certainly have been laughed to scorn for dreaming of some new webs of spiders. . . . So awkward and ill-conditioned is the human mind in this case of invention, that in some things it is first diffident, and ever afterwards despises itself; so that first it seems incredible that such and such a thing could be invented, but after it has been invented it then seems incredible that it could have escaped the notice of man so long.”*

Herein, then, consists Bacon's principle, which is not defined with sufficient accuracy when, as is commonly the case, he is called the “Philosopher of Experience.” This expression is too vague and broad. Bacon is the philosopher of *Invention*; at least his only endeavour is philosophically to comprehend and fortify the inventive spirit of man. From this point alone is his opposition to anti-

* *Cogitata et Visa*, towards the end.

quity and his new philosophy to be explained. This philosophy is as boundless as the region of invention. It is a movable instrument, not a fixed edifice of dogmas. It will not endure the confinement of system, the fetters of the school, the universality and completeness of theory. "Our determination is," says Bacon, "to try whether we can really lay firmer foundations and extend to a greater distance the limits of human power and dignity. And although, here and there, upon some special points we hold (as we think) more true, more certain, and even more profitable tenets than those hitherto adopted, yet we offer no universal or complete theory."*

Just as Plato detected, and, we may say, gave a logical expression to the spirit that dwelt in the poetry and art of the Greeks, so does Bacon direct his glance to the spirit of invention by which those discoveries were made that lie at the foundation of his age. The two philosophers bear the same relation to each other, and are as much distinguished from each other as the ages in which

* "Nobis constitutum est, experiri, an revera potentiæ et amplitudinis humanæ firmiora fundamenta jacere ac fines in latius proferre possimus. Atque licet sparsim, et in aliquibus subjectis specialibus, longe veriora habeamus et certiora (ut arbitramur), atque etiam magis fructuosa, quam quibus homines adhuc utuntur, tamen theoriam nullam universalem, aut integram proponimus."—*Nov. Org.* I. 116.

they lived. Both direct their thoughts to human *art*. But the art to which the Greek philosopher corresponds is the theoretic, self-sufficient art of beauty in form; whereas that which finds its representative in Bacon is the practical, invention-seeking art of human utility. Bacon himself declares, at the end of the first book of his "*Novum Organum*:" "Let any one consider how great is the difference between the life of man in the more polished countries of Europe, and that in some wild and barbarous region of the New Indies. He will deem the difference so great, that man may be rightly called a god unto man, not only on account of assistance and benefits, but also by a comparison of moral conditions. And this is the result not of the soil, not of the climate, not of any material body, but of the arts. It is profitable to note the force, effect, and consequences of things invented, which are nowhere more manifest than in these three, which were unknown to the ancients, and the beginnings of which, though recent, are obscure and without glory, viz., the art of printing, gunpowder, and the mariner's compass. For these three have changed the aspect and condition of the whole earth; first, in literature; secondly, in warfare; thirdly, in navigation. Whence innumerable changes have been derived, so that no empire,

sect, or star seems to have exercised greater power or influence over human affairs than these mechanical inventions.”*

We need only apprehend the idea of invention with analytical clearness to perceive the peculiar character of the Baconian philosophy, its object, its constitution, and its opposition to antiquity. Its sole object is to effect such a reform and extension of human science that this may turn to invention as its chief end, and to furnish science with an instrument which is as well fitted to make inventions, as a thermometer to measure heat. This instrument is the Logic of Invention (*ratio inveniendi*), which makes the human understanding think in such a manner that it invents by necessity. Bacon explains inventive thought; he seeks the method of invention. While he exhibits this, he formulises the spirit, and hits the central point of his age, more especially fortifying the peculiar talent and impulse of his own nation. The method of invention is the instrument with which Bacon would equip science, and render it capable of conquering the world. This instrument is the “*Novum Organum*,” which Bacon opposes to the “*Organon*” of Aristotle. He bears the same relation to antiquity as his “*Organum*”

* “*Rursus (si placet) reputet quispiam, quantum intersit,*” &c.—*Nov. Org.* I. 129.

to that of Aristotle. Bacon analyses invention as Aristotle analyses the form of propositions.

II. THE DOMINION OF MAN.

(REGNUM HOMINIS.)

Invention is the aim of science; but what is the aim of invention? Usefulness to man, which consists in this, that the wants of his life are satisfied, his pleasures multiplied, and his power increased. In one word, the *dominion of man* over things is the highest and indeed the sole end of science; an end which can only be attained by means of inventions. Science should serve man,—should make him powerful. We cannot be made powerful otherwise than by science, for our power over things is solely based on our knowledge of their nature. Power consists in *being able*; but ability presupposes knowledge. Man can only act so far as he knows; his capability reaches only so far as his knowledge; or, as Bacon expresses himself at the commencement of the “*Novum Organum* : ” “ Human science and human power coincide.”*

Science is, with Bacon, not the sole all-sufficient end in itself, but the means to a further end. This

* “*Scientia et potentia humana in idem coincidunt.*”—*Nov. Org.* I. 3.

absolute end is the reign of man; the means to attain this end are given by invention; the means of invention are furnished by science. Thus, in Bacon's eyes, science is eminently practical; its measure is human life, its value consists in its utility to man. The further the utility extends the greater is the invention, and the greater also are the value and power of the science that belongs to it. A science that is not practically useful is, in Bacon's eyes, worth nothing. To his practical mind there is no self-sufficient theory estranged from life, and, on the other hand, there is nothing in human life that is to be deemed unworthy of investigation, or despised as an object for the understanding. Science no more distinguishes anything as low and vulgar, than the sun over our heads: "With regard to the meanness or even filthiness of those things, which, as Pliny says, are not to be mentioned without an apology, they must be admitted into Natural History, no less than those which are most magnificent and precious. Nor is Natural History polluted thereby; for the sun equally enters palaces and sewers, nor is he therefore polluted. We neither dedicate nor raise a capitol or pyramid to human pride, but we found a holy temple in the human mind, on the model of the universe. This model, therefore, we follow. Whatever is worthy of

being, is likewise worthy of knowledge, which is the image of being. Now the mean and splendid alike exist.”*

III. THE INTERPRETATION OF NATURE.

(INTERPRETATIO NATURÆ.)

The reign of man is the aim of invention. But what are its means? What are the conditions under which alone invention is possible? We cannot govern things without knowing them, and this knowledge, which at once renders objects transparent and subservient to us, can only be attained by long intercourse,—by intimate acquaintance. To understand things we must associate with them, as with men,—live in the midst of them. “We must,” says Bacon, “bring men to particulars themselves, and their series and orders, and men must for awhile prevail upon themselves

* “Quod vero ad rerum vilitatem attinet, vel etiam turpitudinem, quibus (ut ait Plinius) honos præfandus est; eæ res, non minus quam lautissimæ et pretiosissimæ, in Historiam Naturalem recipiendæ sunt. Neque propterea polluitur Naturalis Historia; sol enim æque palatia et cloacas ingreditur, neque tamen polluitur. Nos autem non Capitolium aliquod aut pyramidem hominum superbiæ dedicamus aut condimus, sed templum sanctum ad exemplar mundi in intellectu humano fundamus. Itaque exemplar sequimur. Nam quicquid essentia dignum est, id etiam scientia dignum, quæ est essentiæ imago. At vilia æque subsistunt atque lauta.”—*Nov. Org.* I. 120.

to cast aside their (pre-conceived) notions, and to form an acquaintance with the things themselves."* This acquaintance or intercourse with things consists in *experience*. Just as a knowledge of man is not to be obtained by construction from abstract notions; so is it with the knowledge of things. Science should be the correct image of the world; this it can only become by an experience of the world, that sojourns amid things and their movements and contemplates them all with a free, unprejudiced interest. In this sense Bacon makes experience the beginning of science. Science should invent, and the road to invention is shown by experience. In this sense is Bacon the philosopher of experience. Invention is the end, and experience gives the means to that end. But mere experience is far from being invention in itself. Men have always had experiences, and have them every day. Why do they not invent in the same proportion? Simply because that is wanting which renders experience inventive? And by what means is experience rendered inventive? How must it be so ordered that invention is its involuntary and necessary

* "Restat nobis modus tradendi unus et simplex, ut homines ad ipsa particularia et eorum series et ordines adducamus; et ut illi rursus imperent sibi ad tempus abnegationem notionum, et cum rebus ipsis consuescere incipiant."—*Nov. Org.* I. 36.

result? Under this definite formula does Bacon conceive his problem.

Invention is an *art* which differs from æsthetic art in this: that the former, by means of the imagination, produces something beautiful; the latter, by means of the understanding, produces something useful. That which serves mankind, augments his power, subjects to him the power of things, is useful. The dangerous forces of nature are brought under our dominion, and rendered subservient to our uses, whether as rulers we employ them, or as victors ward them off. Lightning is a manifestation of natural force that threatens us; the lightning-conductor secures us against the threatened danger. Now to make an invention of this kind,—in fact, to produce anything whatever by means of the understanding,—I must know all the requisite conditions. Every invention is an application of natural laws; and to apply them it is necessary to know them. We must know what are the conditions of warmth to invent an instrument by which warmth may be produced. We must know the natural laws of lightning to present the conducting point to the destructive spark. And so in every case. Our power over nature is based upon our knowledge of nature and her operative forces. If I am ignorant of the cause, how can I produce the

effect? “Knowledge and power,” says Bacon, “coincide, since the ignorance of the cause frustrates the effect. Nature can only be conquered by obedience; and that which stands as the *cause* in contemplation becomes the rule in practice.”*

Thus the right understanding of nature is the means by which experience leads to invention. If science is the foundation of all invention, so is the right understanding of nature, or *natural science*, the foundation of all knowledge. “Although,” says Bacon, “in those very ages in which the wit of men and literature flourished greatly or even moderately, the smallest part of human labour was bestowed upon Natural Philosophy, this very philosophy is nevertheless to be regarded as the great mother of the sciences.”† But natural science requires a correct explanation of nature,—a knowledge not only of her phenomena,

* “Scientia et potentia humana in idem coincidunt, quia ignorantia causæ destituit effectum. Natura enim non nisi parendo vincitur; et quod in contemplatione instar causæ est, id in operatione instar regulæ est.”—*Nov. Org.* I. 3.

† The above is rather a condensation than a translation of the passage (*Nov. Org.* I. 79.) referred to, which is this:—“At secundo loco se offert causa illa magni certe per omnia momenti: ea videlicet, quod per illas ipsas ætates, quibus hominum ingenia et literæ maxime vel etiam mediocriter flourerint, Naturalis Philosophia minimam partem humanæ operæ sortita sit. Atque hæc ipsa nihilominus pro magna scientiarum matre haberi debet.”—J. O.

but also of her laws; that is to say, a real interpretation. Here is the decisive point at which theory becomes practical, contemplative science becomes operative, knowledge becomes productive, experience becomes inventive. And invention itself forms the transition from the interpretation of nature to the dominion of man. Through science experience becomes invention, through invention science becomes human dominion. Our power rests upon our invention, and this upon our knowledge of things. In Bacon's mind, power and knowledge, the dominion of man, and the scientific interpretation of nature, belong so essentially to each other, that he treats them as synonymous, and connects them with an "or" (*sive*). His "Novum Organum" treats "De Interpretatione Naturæ *sive* de Regno Hominis."

Our power consists in knowledge: in this truly philosophical proposition Bacon and Spinoza are agreed. According to Bacon, knowledge makes us inventive, and therefore powerful. According to Spinoza, knowledge makes us free by destroying the dominion of the passions, and the power of external things over ourselves. Here appears the difference of the directions taken by the two minds. With Spinoza, our power consists in free thought, which remains calmly contemplating the world, and is satisfied

with that condition. With Bacon, our power consists in inventive thought, which exerts a practical influence over the state of the world, cultivating it and modifying it. The aim of Spinoza is attained when things cease to govern us; that of Bacon, when we govern the things. Bacon uses the power of knowledge practically, Spinoza theoretically; both in the widest sense of the term. Spinoza's aim is contemplation; culture is the aim of Bacon.

CHAP. III.

EXPERIENCE AS THE MEANS OF INVENTION.

THE leading points in the Baconian philosophy stand thus:—Its ultimate purpose is the foundation and augmentation of human dominion; the nearest means to that end are supplied by culture, which converts physical forces into instruments fitted for man. Now there is no culture without invention, which produces the means of culture; no invention without science, which makes us acquainted with the laws of things; no science without natural philosophy; no natural philosophy without an interpretation of nature that perfects itself according to the standard of experience. From every one of these as so many points of view Bacon may be characterised, for each gives an essential characteristic of his philosophy. He aims at the culture of humanity by a skilful application of natural science; he seeks to attain natural science by a right use of experience. By a correct method he would convert experience into science; by application in the form of invention,

he would convert science into art; and this he would convert into a practical and general civilisation, designed for the whole race of man. What single name will suffice adequately to denote such a mind? By connecting his points of view in such logical order, Bacon becomes a *great* thinker. By opening the widest prospects into the realm of science, and into the whole sphere of human civilisation, from these points of view, by indicating goals and setting up problems in every direction, so that his system is nowhere brought to a conclusion and dogmatically hedged round, the *great* thinker becomes an *epoch-making* thinker. For it is the peculiarity of epoch-making minds that they are open to the future. Bacon designed no finished system, but a living work, that should be continued in the progress of time. He sowed the seed for a future crop, which was to ripen slowly, and not to attain its perfection till centuries had elapsed. Bacon was well aware of this; he was satisfied to be the sower, and to begin a work which time alone could complete. This feeling with regard to himself was neither more nor less than a correct consciousness of his *cause*. At the conclusion of his preface to the "*Novum Organum*"* he says thus:—"Of our-

* More correctly, the general preface to the "*Instauratio Magna*."—J. O.

selves we say nothing; but for the matter which is treated, we desire that men should regard it not as an opinion, but as a work, and should be assured that we are laying the foundation not of any sect or theory, but of that which conduces to the use and dignity of man. Next, we desire that, laying aside their jealousies and prejudices, they may fairly consult their own common advantage, and having been rescued by us from the errors and obstacles of their road and furnished with our defence and assistance, they may themselves participate in the labours that yet remain. Moreover, that they may be strong in hope, and not imagine that our *Instauratio* is something infinite and beyond the reach of man, when it is really an end and legitimate termination to infinite error, and is so far mindful of the mortal lot of man that it does not hope to accomplish its work within the period of a single life, but leaves this to succeeding times; when, moreover, it does not arrogantly search for science in the narrow cells of human wit, but humbly in the greater world.”* In the

* “De nobis ipsis silemus: de re autem quæ agitur petimus, ut homines eam non opinionem, sed opus esse cogitent, ac pro certo habeant, non sectæ nos alicujus aut placiti sed utilitatis et amplitudinis humanæ fundamenta moliri. Deinde ut suis commodis æqui, ex utrisque opinionum zelis et prejudiciis, in commune consulant, ac ab erroribus viarum atque impedimentis, nostris præsidiiis et auxiliis, liberati et muniti laborum qui restant et

same spirit is the following passage, which occurs towards the end of the first book of the "*Novum Organum*:"—"It will not be amiss to distinguish three kinds, and, as it were, degrees, of human ambition; first, that of those who desire to enlarge their own power in their country, which is a vulgar and degenerate kind; next, that of those who strive to enlarge the power and dominion of their country among the human race, which is certainly more dignified, but no less covetous. But if one should endeavour to renew and enlarge the power and dominion of the human race itself over the universe, this ambition (if so it may be called) is, beyond a doubt, more sane and noble than the other two. Now the dominion of men over things depends alone on arts and sciences; for nature is only governed by obeying her."*

ipsi in partem veniant. Præterea ut bene sperent, neque Instaurationem nostram, ut quiddam infinitum et ultra mortale fingant et animo concipiant; quum revera sit infiniti erroris finis et terminus legitimus; mortalitatis autem et humanitatis non sit immemor; quum rem non intra unius ætatis curriculum omnino perfici posse confidat sed successioni destinet; denique scientias non per arrogantiam in humani ingenii cellulis, sed submisce in mundo majore quærat."

* "*Præterea, non abs re fuerit, tria hominum ambitionis genera et quasi gradus distinguere. Primum eorum, qui propriam potentiam in patria sua amplificare cupiunt; quod genus vulgare est et degener. Secundum eorum, qui patriæ potentiam et imperium inter humanum genus amplificare nituntur; illud plus certe habet dignitatis, cupiditatis haud minus. Quod si quis*

It is obvious that human culture depends upon experience, and the latter upon natural science in the sense of an interpretation of nature. The question remains: How does experience become natural science? For at first it is nothing but a perception of single facts, a collecting together of manifold instances, an enumeration of the things perceived, and their properties; and the experience of common minds scarcely ever rises above this ordinary level. By what means, then, does ordinary experience become scientific (and thus, consequently, inventive) experience? By what means does "Natural History" (thus, with Bacon, we designate the narration of particulars) become Natural Science?—how does *historia naturalis* become *scientia naturalis*? By what means does the description of nature (*descriptio naturæ*) become the interpretation of nature (*interpretatio naturæ*)? To these questions we are brought back by the problem which Bacon negatively proposes in the first book of the "Novum Organum," and positively solves in the second.*

humani generis ipsius potentiam et imperium in rerum universitatem instaurare et amplificare conetur, ea proculdubio ambitio (si modo ita vocanda sit) reliquis et sanior est et augustior. Hominis autem imperium in res, in solis artibus et scientiis ponitur. Naturæ enim non imperatur, nisi parendo."—*Nov. Org.* I. 129.

* Bacon himself calls the first part of his "Novum Organum"

I. THE IDOLS.

Nature is to be interpreted like a book. The best interpretation is that which explains an author out of himself, and imputes to him no other sense than his own. The reader should not force his own sense upon the author, as he will thus render a correct understanding impossible, and arrive at an imaginary interpretation, which, in truth, is none at all. As the reader who makes his comments is to the book, so should human experience be with regard to nature. According to Bacon, science is the edifice of the world in the human mind; hence he calls it a temple after the example of the world. The understanding should copy nature, and nothing but nature, without idealising her, without abridging her; it should add nothing of itself, neither take away nor overlook anything belonging to the object, under the misleading influence of a childish and effeminate disgust at that which is foolishly termed mean or filthy.* It should copy nature by imitating her details, and not from

"Pars destruens." It is intended to refute adverse views, and to cleanse the human mind, like a threshing-floor, that this may be rendered capable and susceptible of a new kind of knowledge. Compare "Nov. Org." I. 115.—Author's note.

* Compare "Nov. Org." I. 120.

its own authority sketch a picture without caring for the original. Such a self-created picture is not taken from the nature of things, but is *anticipated* by the human understanding. Considered in relation to the understanding, it is an *anticipatio mentis*; considered in relation to nature, it is an *anticipatio naturæ*; compared with the original external to ourselves, it is no true copy, but a mere empty unreal image, that has no existence save in our own fancy;—a creation of the brain (Hirngespinnst) or “Idol.” Hence the first negative condition, without which a knowledge of nature is altogether impossible, is that idols may not be set in the place of real things—that in no case may there be an *anticipatio mentis*. Nothing should be anticipated, but all should be experienced, that is, derived from the things themselves. There should be no general conceptions (Begriffe) that are not preceded by actual observations; no judgments that are not preceded by actual experience; no *anticipatio mentis*, but only an *interpretatio naturæ*.* “For the sake of distinction,” says Bacon, “we are wont to call human reasoning, as applied to nature, the *anticipation* of nature, because it is rash and premature; but that which is properly

* Compare “Nov. Org.,” præf. (towards the end).

deduced from things, the *interpretation* of nature."* Here Bacon discovers the fundamental defect of all the science that has preceded him. Nature, instead of being *interpreted*, has been *anticipated*, inasmuch as explanations have been based either upon preconceived notions, or upon too scanty experience. Either the experience was made under the influence of an *anticipatio mentis*, or is interrupted by such an anticipation; in both cases something is assumed which has been insufficiently proved or not proved at all by experience. Thus there has been no correct and penetrating knowledge of nature, and thus orderly and deliberate invention has been impossible. Invention has been left to chance;—hence its excessive rarity; and science has remained occupied with idle speculations;—hence its sterility. A want of experience, or a too credulous experience, lies at the foundation of all these deficiencies.

The human understanding must henceforward become the perfectly pure and willing organ of experience. It must first get rid of all those notions, which it has deduced from its own

* "*Rationem humanam qua utimur ad naturam, Anticipationes Naturæ (quia res temeraria est et præmatura), at illam rationem quæ debitis modis elicitur a rebus, Interpretationem Naturæ, docendi gratia vocare consuevimus.*"—*Nov. Org.* I. 26. Compare also to 33. inclusive.

nature, not from that of things. These notions are not found, but anticipated. Such "Idols" belong to human nature, either as a natural or an historical inheritance. The natural idols are the peculiarities of the human species or of particular individuals; and thus comprise errors common to the whole race (*idola tribus*), and accidental individual errors (*idola specus*). The historical idols depend upon manners, usages, and customs, such as arise from the intercourse between man and man (*idola fori*), or upon general traditions which on the great theatre of humanity are handed down from generation to generation (*idola theatri*). These idols obscure the human understanding, and hide from it the face of nature; they must be discarded for ever on the very threshold of science. "The idols and false notions which have hitherto occupied the human understanding and are deeply rooted in it, not only so beset the minds of men that the access of truth is rendered difficult, but even when access is given they will again meet and trouble us in the very restoration of the sciences; unless men, being forewarned, guard themselves as much as possible against them." *

* "Idola et notiones falsæ quæ intellectum humanum jam occuparunt atque in eo alte hærent, non solum mentes hominum ita obsident ut veritati aditus difficilis pateat; sed etiam dato et

The “idols,” according to Bacon, are the “*duties of omission*” * in the world of science. They resemble *ignes fatui*, which the traveller ought to know in order to avoid them. Bacon would make us acquainted with these *ignes fatui* of science, that direct us from the true path of experience; therefore he treats first of the delusions, then of the method of knowledge. Whoever seeks real copies of things must beware of false semblances, just as the logical thinker must be on his guard against sophisms. “The doctrine of “Idols,” says Bacon, “bears to the interpretation of nature a relation similar to that which the doctrine of sophisms bears to ordinary dialectic.” †

II. THE BACONIAN SCEPTICISM.

BACON AND DESCARTES.

To oppose idols and prejudices, whencesoever they may come, science begins with doubt—with

concesso aditu, illa rursus in ipsa instauratione scientiarum occurrent et molesta erunt, nisi homines præmoniti adversus ea se quantum fieri potest muniant.”—*Nov. Org.* I. 38. For the doctrine of “Idols,” compare the following Aphorisms to 68, inclusive.

* “Unterlassungspflichten.”

† “Doctrina enim de Idolis similiter se habet ad Interpretationem Naturæ, sicut doctrina de Sophisticis Elenchis ad Dialecticam vulgarem.”—*Nov. Org.* I. 40.

utter uncertainty. Doubt is the starting-point, not the goal of science; the goal is certain and well-grounded knowledge. Science, according to Bacon, should begin with "Acatalepsia," to terminate in "Eucatalepsia." The Baconian doubt seeks to shake not the foundations, but only the false foundations of science, that a firm edifice after the pattern of the world may be raised in the human mind. Bacon agrees with the sceptics in his starting-point, not in his result. "The views of those who adhered to Acatalepsia and our own method agree, to some extent, at the commencement; but in the end they differ immensely, and are completely opposed to each other. For the sceptics roundly assert that nothing can be known at all; we, that only a small part of nature can be known by the method now in use. They proceed next to destroy the authority of the senses and the understanding, for which we, on the contrary, invent and supply assistance."* And in the same spirit Bacon declares, towards the end of the first book of

* "Ratio eorum qui acatalepsiā tenuerunt, et via nostra, initiiis suis quodammodo consentiunt; exitu immensum disjunguntur et opponuntur. Illi enim nihil sciri posse simpliciter asserunt; nos non multum sciri posse in natura, ea quæ nunc in usu est via: verum illi exinde auctoritatem sensus et intellectus destruunt; nos auxilia iisdem excogitamus et subministramus."—*Nov. Org.* I. 37. With respect to Bacon's relation to the Ancient Sceptics, compare the "Scala Intellectus."

the “*Novum Organum* :” “We do not contemplate and propose Acatalepsia, but Eucatalepsia; for we do not derogate from, but assist the senses; and we do not despise, but direct the understanding. And it is better to know what is necessary, and at the same time to think that we do not know it thoroughly, than to think that we know thoroughly, and at the same time to know nothing of that which is required.”*

Hence we may compare the Baconian doubt with the Cartesian; for these two, by effecting the revival of philosophy, divide the epoch of that revival between them. Both of them have the same origin and the same tendency, both have the same goal before them, and are actuated by the same internal conviction, that all the knowledge hitherto acquired is but uncertain, and that a new kind of knowledge is required. The cause of science must once more be undertaken from its very commencement; the work of the understanding must be performed anew. Thus alike think Bacon and Descartes. Therefore, by means of doubt, they withhold their assent from

* “Nos verò non Acatalepsiam, sed Eucatalepsiam meditamur et proponimus: sensui enim non derogamus, sed ministramus; et intellectum non contemnimus, sed regimus. Atque melius est scire quantum opus sit et tamen nos non penitus scire putare, quam penitus scire nos putare, et tamen nil eorum quæ opus est scire.” — *Nov. Org.* I: 126.

all the knowledge that has hitherto been deemed unquestionable, in order to obtain a clear field for their labour of renovation. Their doubt is of the reformatory kind; it is a purification of the understanding, with a view to a perfect renewal of science. But now, what is to be effected by the understanding thus purified, and therefore, in the first instance, vacant? Here the two reformers of science part from each other in the opposite directions that are followed by after ages; here, from a common stock, spring the two trunks of modern philosophy. Descartes says, the pure understanding must be left wholly to itself, that from itself alone it may derive all its judgments. Bacon on the other hand declares, in the very preface to the "*Novum Organum*:" "The only remaining hope and salvation is, to begin over again the whole work of the mind, so that from the very first the mind may not be trusted to itself, but continually directed."*

The common root of modern philosophy is the doubt which is alike Baconian and Cartesian. From this doubt springs the pure intellect, which is left to itself by Descartes; while, on the other hand, it is fastened by Bacon to the leading-strings of nature. From these different, and, we

* "*Restat unica salus ac sanitas, ut opus universum mentis de integro resumatur; ac mens, jam ab ipso principio, nullo modo sibi permittatur, sed perpetuo regatur.*"—*Nov. Org.*, præf.

may say, opposite dispositions of the philosophical understanding, arise the different directions taken by modern philosophy in the progress of its development. One series follows the self-sufficient intellect of Descartes, the other the intellect in the leading-strings of nature, to which it has been attached by Bacon. The representatives of the former tendency are necessarily metaphysicians and idealists; those of the latter (necessarily likewise) are empiricists and sensualists. The Cartesian soil could not do otherwise than bring forth a Spinoza and a Leibnitz; the Baconian naturally produced a Hobbes and a Locke. Leibnitz originates the German, Locke the Anglo-Gallic enlightenment (*Aufklärung*), both of which lead to a new epoch in philosophy, in which they are merged at last. However, we need not here follow this yet distant prospect.

We return to that doubt by means of which Bacon and Descartes purify the understanding from all prejudices. The understanding so purified is directed by Descartes to itself, by Bacon to nature; the former makes it at once self-dependent, the latter makes it completely dependent on nature; or, to express ourselves figuratively, the pure understanding, just newly born, is at once matured to manhood with Descartes; while with Bacon it is first in a state of childhood, and is treated as a child. This treat-

ment is less bold, but more judicious, because more conformable to nature. Bacon treats the understanding like a trainer; the child ought to grow and develop itself *gradually*. In a child-like mind, which stands open, without reserve or prejudice, to the impressions of the world, must science be renewed, for thus it literally becomes once more young. According to the Baconian philosophy, the human understanding has a Natural History; while, according to the Cartesian, it is alike devoid of history and nature.*

Bacon bids science meet the "Idols" with annihilating doubt, but nature with pure susceptibility † (*Empfänglichkeit*). The human understanding must resign itself wholly to nature with child-like confidence, that it may really feel domesticated with nature. Bacon loves to compare the dominion of man, which consists in knowledge, with the kingdom of Heaven, of which the Bible says: — "Except ye become as little children, ye shall not enter into the kingdom of Heaven." "The idols of every kind," says Bacon, "must be abjured and renounced with a firm and solemn resolution, and the understanding must be wholly freed and cleared from them, that the access to the kingdom of man, which is

* "Natur- und Geschichtslos."

† Or "receptivity."—J. O.

founded in science, may be same as that to the kingdom of Heaven, where no entrance is possible, save by assuming the character of children." *

III. THE EXPERIMENTALISING PERCEPTION.

In the spirit of Bacon, we may designate that view of things as alone correct which remains to us after the removal of all idols. These Idols are the peculiarities of human nature and of individuals, the conventionalities of social intercourse, and the authorities confirmed by history. All these varieties may incontestibly have their value in their proper place, but they have nothing in common with the nature and quality of things, and therefore our observation of things ought not to be influenced by them. It is only with respect to science, which they should not affect, that they are idols. Of the classes above enumerated we omit that of individual peculiarity, as leading too much into the obscure and indefinite. The others are more manifestly

* "Quæ omnia (idola) constanti et solenni decreto sunt abneganda et renuncianda, et intellectus ab iis omnino liberandus est et expurgandus; ut non alius fere sit aditus ad regnum hominis, quod fundatur in scientiis, quam ad regnum cœlorum, in quod, nisi sub persona infantis, intrare non datur." — *Nov. Org.* I. 68.

and generally important; they are, therefore, worthy of a clear and accurate description.*

1. CONVICTION OPPOSED TO AUTHORITY.

What results from our contemplation of things after the removal of all the systems and traditions supported by historical authority (*idola theatri*)? On authority, things are considered not as they appear to ourselves, but as they appear to public opinion, which clothes itself with the dignity of a traditional religion or philosophy. Thus they are contemplated without any judgment or experience of our own. On the other hand, our contemplation, when it becomes independent, is converted into autopsy, into observation actually made by ourselves, so that we no longer take upon trust and repeat that which is said or reputed true by others, but only adhere, by virtue of our own convictions, to that which we have ourselves perceived and experienced. Thus, in astronomy, for example, the Ptolemæan system,

* In the omission of the "*Idola specus*," and in the order in which we have ranged the three other Idols, we have followed not our own choice, but the Baconian prescription. Bacon himself calls the negative part of his logic (that is to say, the refutation of the Idols) "*triplex*," and designates the three parts: "*redargutio philosophiarum*" (*idola theatri*), "*red. demonstrationum*" (*id. fori*), and "*red. rationis humanæ naturæ (id. tribus)*."—Vide the tract "*Partis instaurationis secundæ delineatio*."

supported by a certain interpretation of Scripture, was an "*Idolum theatri*," which science, in the person of Copernicus, solemnly and for ever abandoned. Here for the first time she has used her own faculties in observing, with perfect independence, whether the sun really moves and the earth really stands still, and arrives at a result opposed to the belief entertained by public opinion. The exclusion from science of the "*Idola theatri*," as decisive grounds, amounts to a declaration that science is independent of all belief based on authority, and that man is to be referred to his own convictions alone.

2. REAL OPPOSED TO VERBAL KNOWLEDGE.

After the removal of the first class of idols, nothing remains but a personal acquaintance with the things themselves. But now in most cases we fancy that we know things, without having seriously learned to know them. We think we are certain as to their value, because we possess the symbols of it, and circulate them with facility. These symbols are *names* or *words*, which we know sooner than the nature of the things themselves, and with the assistance of which men communicate their notions to each other. Accustomed from childhood to put words in the place of things,

and with these words to be perfectly intelligible to everybody, we involuntarily take them, mere signs as they are, for the things signified,—the nominal for the real value. Words are, as it were, the current coin, by means of which we put forth and take in our notions of things; they constitute, like money in trade, not the real and natural, but the conventional value of things, as settled by the relations of human intercourse. We must not take this market-price for the thing itself, with respect to which it is completely extrinsic and indifferent. So little are words guided by the nature of things, that (for instance), in common parlance*, the sun still moves round the earth, though in truth this never was the case, and though we have long been convinced of the contrary. Words do not say what things *are*, but what they denote to us; they represent our own notions, and generally are as uncertain as our notions are obscure. Because words and the usages of language designate things not as they are in their own nature, but as they are considered in the intercourse between man and man, Bacon reckons the delusion, through which we cling to words, and fancy we grasp the things them-

* As in expressions that refer to the rising or setting of the sun.—J. O.

selves, among the *Idola Fori*.* Hence Bacon loves so much to oppose the wisdom of words to the knowledge of things; an opposition that furnished a watchword to his successors. His remarks on the subject of words, while treating of the *Idola Fori*, contain a brief programme of all the inquiries about language that have been made in accordance with his views. In these investigations both the "Forum" itself and the "Idols" play their part: the Forum, because language appears as a result of human invention, that is to say, a mere arbitrary piece of bungling workmanship; the Idols, because words represent general conceptions, and therefore unreal notions.

3. NATURAL ANALOGY OPPOSED TO HUMAN ANALOGY.

The *Idola Theatri* consist in this: that we take things not as they appear to ourselves, but as they are declared to be on the authority of another; that we see them with the eyes of others instead of our own. The *Idola Fori* consist in this: that we take things not as they are, but as they appear to us through the medium of human intercourse. What view of things is left after the removal of the *Idola Fori*? Our own knowledge is directed from the signs to the things signified,

* Compare Nov. Org. 59, 60.

and these can only be learned by our own perception and investigation.

But then, is even our own perception correct? Are things really what we take them to be,—as they are reflected in our senses? Are the sensible impressions true copies of things themselves—an expression corresponding to their nature, and not rather an expression corresponding to our own? Our own perception and conception of things is, as it were, a translation of them from physical into human nature, from the universe into our own individuality; a translation in which the original loses its own peculiarity, and arbitrarily assumes an human peculiarity in its stead. Thus, even in our own immediate perception of things,—apart from the doctrines enforced by authority and the notions current in social intercourse—there is something foreign to the things themselves; something superadded by *us*; something that lies in the conditions of our nature, so that we fail to make true copies of things, and produce distorted images instead. Our own notion of nature presents delusive phantoms to our gaze, deceives us with false representations. These are, to use Bacon's words, the *Idola Tribus*, which are the most potent of all, for they govern the entire human race; and their government is the hardest to overthrow, inasmuch as they have been

founded not by historical authority in the course of time, but by nature itself. The human soul is, indeed, a mirror of things, but this mirror is so cut by nature that, while it reflects things, it at the same time alters them, and does not exhibit one without blending with it an human element, —without, by a certain magic, transferring it into something human. What is there in common between things themselves and human forms? What has the sun to do with the fact that to the eyes of an inhabitant of the earth he appears to move? This is an illusion, the cause of which lies not in the motion of the sun, but in our own eyes, to which our own planet is the point of view. If I assert that the sun moves, because we are taught so by Ptolemy, I judge by an *Idolum Theatri*. If I make the same assertion, on the ground that everybody says so likewise, I judge by an *Idolum Fori*. If I say: "The sun moves, because I see it move with my own eyes," I judge by an *Idolum Tribus*. I feel, for instance, the warmth of the water, and determine the degree of warmth by my sensations. But the same water appears first cold and a few moments afterwards warm, without any^{*} change having taken place in the degree of *its* warmth. The warmth of *my* body has changed, and this body when heated feels the water cold, when

cooled feels the water warm. Thus is it with all our perceptions,—with our entire contemplation of things. We measure and judge them by our own standard, we view them from a point that lies in our own nature, which is indeed the nearest and most natural as far as we are concerned, but with respect to the things is perfectly foreign and indifferent. We apprehend them not as they are in themselves, but as they stand in relation to us; not according to their own analogy, but according to ours; or to use the Baconian language, we consider things *ex analogia hominis*, not *ex analogia universi*. Under this formula the *Idola Tribus* may best be noted. “These Idols,” says Bacon, “are founded in human nature itself,—in the very tribe or race of men. It is falsely asserted that human sense is the standard of things, since, on the contrary, all the perceptions both of the senses and of the mind are according to the analogy of man, not that of the universe, and the human intellect is like an uneven mirror to the rays of things,—blending its own nature with the nature of the object, so as to distort and disfigure the latter.”*

* “*Idola Tribus sunt fundata in ipsa natura humana, atque in ipsa tribu seu gente hominum. Falso enim asseritur, sensum humanum esse mensuram rerum; quin contra, omnes perceptiones tam sensus quam mentis sunt ex analogia hominis, non*

This passage is mentioned in very contemptuous terms by Spinoza in his letter to Oldenburg. He treats Bacon as a confused babbler, who talks at random about the cause of error and the nature of the mind. But, far from refuting Bacon, he does not clearly show the point that constitutes the utter difference between Bacon and himself. It is worth while to give prominence to this point, for there is manifestly a great deal in the passage above cited that Spinoza himself might have said. In the first place, *Man is not the measure (or standard) of things*: this proposition is in the very spirit of Spinoza. In the second place, all those notions are false that are formed according to the analogy of man, and not according to that of nature, and herein lies the ground of error,—*Error consists in the inadequate representation of things*: this sentence is no less Spinozistic. In the third place, all our representations, both sensuous and logical, are according to human analogy, and therefore inadequate; *the human understanding is by nature an inadequate mirror of things*. In this third proposition alone lies that difference between the two that Spinoza should have shown more clearly. For, according to him, truth is naturally

ex analogia universi. Estque intellectus humanus instar speculi inæqualis ad radios rerum, qui suam naturam naturæ rerum immiscet, eamque distorquet et inficit."—*Nov. Org.* I. 41.

immanent in the human mind, only it is, at first, veiled and obscured by inadequate (sensuous) ideas. Hence, with Spinoza, true knowledge solely consists in the clearing up of obscure ideas, in the emendation of the understanding. With him the understanding is corrected from its own resources; while, on the other hand, with Bacon it is brought to right knowledge by the leading-strings of nature through continued experience. This contrast between Spinoza and Bacon is the same that is to be found between Bacon and Descartes; between Locke and Leibnitz; between empiricism and idealism generally. That Spinoza will make no concession to his adversary, lies in the character of his point of view. Perhaps it was displeasing to him to find, from an opposite point of view, so much that was kindred to his own thoughts; perhaps this very affinity in Bacon especially revolted him. With him the will was a consequence of knowledge, and could never, therefore, be a ground of error. Now of Bacon he says: "Whatever further causes he may assign to error are easily reducible to the one cause of Descartes, namely, that the human will is free and more comprehensive than the understanding; or as Bacon himself (Aph. 49.) more confusedly expresses himself, because the understanding has not the quality of a *dry light*, but receives an

infusion from the will." This passage is not accurately quoted.* It stands thus: "The human understanding has not the quality of a *dry light*, but receives an infusion from the will *and the passions*, whence science is generated in accordance with the wish; for that which man desires should be true he the more readily believes." Now what does Bacon say? That desire perplexes the understanding. And what says Spinoza? That desire is a perplexed understanding. In point of fact, the two propositions declare the same thing, namely, the perplexity of desire.†

4. EXPERIMENT OPPOSED TO THE DELUSION OF THE SENSES.

Sense and Instrument.

What then remains for us, when the understanding and the senses deceive us, and the human mind is by nature a deceptive mirror of things? The understanding and the senses must not be left as they are; they must be cultivated, corrected, assisted, that they may correspond to things; the magic mirror of the

* More properly, the quotation is too abruptly terminated.
—J. O.

† Vide Appendix A.

mind must be made smooth, and polished bright, that the *speculum inæquale* may become a *speculum æquale*. And how can this be effected?—not by nature, but only by art. What is impossible for the mere senses and the unassisted understanding,—namely, a correct perception of things,—is attainable both by senses and understanding with the aid of an instrument. Equipped with a fitting instrument, human perception becomes correct; without one it is fallacious. What is invisible or obscure to the naked eye, becomes visible and clear to the eye armed with a microscope or telescope. The human hand can, indeed, feel the warmth of the water, but cannot arrive at a right judgment respecting it; for it feels its own warmth at the same time, and accordingly as this is greater or less than the warmth of the water, the latter appears cooler or warmer. The actual warmth of the water is only ascertained by the thermometer, which reveals to the eye what the hand is unable to perceive. We will call perception (*Wahrnehmung*), when aided by an instrument, “observation” (*Beobachtung*); and the process by which we exhibit a natural phenomenon in its purity, without any heterogeneous element, an *experiment*. In this spirit, Bacon himself declares: “Neither the bare hand nor the understanding,

left to itself, can effect much ; effects are produced by means of instruments and helps."* And in another place: All true interpretation of nature consists in accurate experiments, whereby the senses pronounce judgment only upon the experiment, but the experiment upon the object itself.

5. EFFICIENT OPPOSED TO FINAL CAUSES.†

However, not only in the nature of the senses, but also in that of the human understanding, are illusive phantoms that destroy the true knowledge of things. And there is *one* notion, especially, that most easily and mischievously misleads the human understanding, most effectually falsifies the interpretation of nature, and is the chief cause of the ignorance and sterility that has hitherto prevailed in science. We have a propensity to transfer to things our own nature and its attributes, thus accommodating things to ourselves, and not ourselves to things, and apprehending the phenomena of nature according to human analogy. Thus we interpret nature falsely ; endowing her with human attributes, and conceiving her not

* "Nec manus nuda nec intellectus sibi permissus multum valet ; instrumentis et auxiliis res perficitur."—*Nov. Org.* I. 2.

† "Causalität gegen Teleologie."

something physical, but something anthropomorphic. It belongs to the very constitution of our understanding to form generic ideas; and to that of our will to act with certain ends in view. These generic ideas and ends (or goals) are *forms* that belong essentially to man, but explain nothing in the nature of things. Nevertheless, these very ideas that explain nothing have hitherto constituted the principles of what is called Natural Philosophy. Bacon reckons Final Causes among the *Idola Tribus*, and in the region of physics finds them not only useless, but injurious. He deduces them in the following manner from the propensity of the human understanding: "The human understanding, being restless and unable to halt or rest, ever presses forward, but in vain. Thus it appears inconceivable that there is any final boundary to the world, but it always seems necessarily to occur to us that there must be something beyond. Nor, indeed, can we imagine how eternity has flowed down to the present day; for the ordinary distinction of an infinity, a *parte ante* and a *parte post*, cannot hold good, inasmuch as it would necessarily follow that one infinity is greater than another, and also that infinity is wasting away and verging to an end. There is a similar subtilty with regard to the infinite divisibility of

lines arising from the weakness of our own faculty of thought. But still greater mischief arises from this mental impotency in the discovery of causes. For though the greatest generalities in nature should be positive just as they are found, and in point of fact are not causable; nevertheless the human understanding, incapable of rest, seeks for something better known. Thus, however, whilst aiming at what is more remote, it falls back to what is nearer, namely, to final causes, which clearly belong more to the nature of man than to that of the universe; and from this source philosophy has been marvellously corrupted. Indeed, it is the part of an inexperienced and shallow philosopher to seek for causes in the greatest generalities, and not to require a cause for subordinate objects.”*

* “*Gliscit intellectus humanus, neque consistere aut acquiescere potis est, sed ulterius petit; at frustra. Itaque incogitabile est ut sit aliquid extremum aut extimum mundi, sed semper quasi necessario occurrit ut sit aliquid ulterius: neque rursus cogitari potest quomodo æternitas defluerit ad hunc diem; cum distinctio illa quæ recipi consuevit, quod sit infinitum a parte ante et a parte post, nullo modo constare possit; quia inde sequeretur quod sit unum infinitum alio infinito majus, atque ut consumatur infinitum, et vergat ad finitum. Similis est subtilitas de lineis semper divisibilibus, ex impotentia cogitationis. At majore cum perniciæ intervenit hæc impotentia mentis in inventione causarum: nam cum maxime universalia in natura positiva esse debeant, quemadmodum inveniuntur, neque sunt revera causabilia; tamen intellectus humanus, nescius acquiescere, adhuc*

By the idea of a final cause, metaphysics are distinguished from physics. An interpretation of nature by final causes is a mixture of metaphysics with physics, which renders the latter confused and sterile. Sterility in a science is, to Bacon's mind, something deplorable; and as he has proposed to free science from its wretched condition, he is bent upon clearing up perplexities, separating what has wrongly mixed, parting the heterogeneous. He would exhibit physics in all their purity, and therefore he assigns to metaphysics the forms and final causes that are of no service to physics. Physics are occupied not with the forms, but with the matter of things; they explain individual phenomena, are satisfied with secondary causes, with which they interpret everything in nature, and interpreting nothing by final causes, leave the primary origin of things to metaphysics. The efficient are, in fact, the physical causes. Thus, in his work "*De Augmentis Scientiarum*," Bacon designates the theory of final causes as a portion of meta-

appetit notiora. Tum vero ad ulteriora tendens ad proximiora recidit, videlicet ad causas finales, quæ sunt plane ex natura hominis potius quam universi; atque ex hoc fonte philosophiam miris modis corruerunt. Est autem æque imperiti et leviter philosophantis, in maxime universalibus causam requirere, ac in subordinatis et subalternis causam non desiderare."—*Nov. Org.* I. 48.

physics that has hitherto not been overlooked, but assigned to a wrong department. "The inquiry of final causes," he says, "I am moved to report not as omitted, but as misplaced; and yet if it were but a fault in order, I could not speak of it, for order is matter of illustration, but pertaineth not to the substance of sciences. But this misplacing hath caused a deficiency, or at least a great improficiency in the sciences themselves. For the handling of final causes, mixed with the rest in physical inquiries, hath intercepted the severe and diligent inquiry of all real and physical causes. . . . And therefore the natural philosophy of Democritus and some others (who did not suppose a mind or reason in the power of things, but attributed the form thereof, able to maintain itself, to infinite essays or proofs of nature, which they term fortune,) seemeth to me, as far as I can judge by the recital and fragments which remain unto us, in particularities of physical causes, more real and better inquired than that of Aristotle or Plato." *

Thus, the position of Bacon among philosophical minds is determined. He would establish the dominion of man over nature, by means of

* "Advancement of Learning." The parallel passage in "De Aug. Scient." to which Dr. Fischer refers, will be found in lib. iii. cap. iv.

invention; he would arrive at invention by the interpretation of nature, *without idols*. Do not, in your view of things, allow yourself to be swayed by any authority or doctrine whatever, but observe for yourself. Learn to know things themselves; not through the medium of words, but as they are in reality, — not according to current notions, but as they are in nature. Make experiments and observations for yourself; but do not let your observations be affected by analogies drawn from the nature of man (*analogia hominis*); do not be misled by the senses, which present you with illusions, nor by the hasty understanding that rapidly flies over details and involuntarily substitutes itself for the physical forces; that is to say, rest your observations upon experiment, set out with the exclusion of final causes from your interpretation of nature, nowhere seek for anything beyond the efficient causes of natural phenomena.

Thus that which remains after the removal of all the idols, is experimentalising perception from the point of view taken by mechanical or physical causality. By this course alone can the human mind attain a real copy of nature, which according to Bacon is the true object of science. “The world is not to be confined

(as hitherto) within the straits of the intellect, but the intellect is to be enlarged to receive the image of the world, such as it is." *

* "Neque enim arctandus est mundus ad angustias intellectus (quod adhuc factum est), sed expandendus intellectus et laxandus ad mundi imaginem recipiendam, qualis invenitur."--*Parasceve*, IV.

CHAP. IV.

TRUE INDUCTION AS THE METHOD OF EXPERIENCE.

THE only true and fruitful mode of contemplating nature is experimentalising perception, directed solely to the efficient causes of things. The perception thus attained, after the removal of all Idols,—this perfectly objective view of things we will, with Bacon, call “pure experience” (*mera experientia*). The end of experience is obvious enough;—it proceeds from the facts of nature, and directs itself to their causes. A way, therefore, is to be found that will lead from one point to another,—not by a mere happy chance, but of necessity,—and this way is the *method of experience*. The first task it proposes is to ascertain facts, that is, to establish what really happens, with the circumstances of the event, and thus to collect materials, which will form the elementary substance—as it were, the capital of science. Let us suppose this task—this *quæstio facti*—performed to the greatest possible perfection, and we have a series of cases, a collection of facts, which when they are once established

can at first merely be enumerated. Thus, the performance of the first task consists in the simple enumeration (*enumeratio simplex*) of perceived facts, which, properly arranged, constitute the description of nature or "Natural History." Now how from such a description do we get a science of nature? How from this experience do we obtain knowledge; or, what is the same thing, how do we ascend from the experience of facts to the experience of causes? There is no real knowledge before the experience of causes, or, as Bacon says: "To know truly is to know from causes."* How then am I to learn the causes, the effective conditions, on which the phenomenon in question is to be found?

I. THE COMPARISON OF SEVERAL INSTANCES.

Every natural phenomenon is presented to me under certain conditions. The point therefore is, among the various *data* to ascertain those that are absolutely necessary and essential to the phenomenon in question; so that it would not be possible without them. "How shall I find the *essential* conditions?"—that is the question, and the answer is: "By setting aside whatever is non-essential or contingent." The residue of the

* "Recte ponitur: vere scire esse per causas scire."—*Nov. Org. Lib. II. Aph. 2.*

data, after this operation, will manifestly consist of those that are essential and true. As the necessary conditions in all instances consist of the data that are left after this deduction, Bacon terms these the "true difference" (*differentia vera*); which he further designates as the fountain of things, operative nature, the form of a given phenomenon.* As the true contemplation of things is the perception of them by man after the removal of all idols, the true conditions of a phenomenon are those that remain after the deduction of contingencies. Now arises the question: "How shall I know what is contingent?" The discovery of contingencies, and the separation of them from the other data, is the real purpose and aim of the Baconian experience. If this problem is solved, we have arrived at the discernment of the essential conditions of a phenomenon, consequently at the knowledge of the natural law itself, or the *interpretatio naturæ*.

There is only one way of obtaining the solution, viz., the comparison of a number of similar instances. This comparison must be of a two-fold kind. In the first place we should compare several instances in which the same phenomenon

* "Datae autem naturæ Formam, sive differentiam veram, sive naturam naturantem, sive fontem emanationis invenire, opus et intentio est Humanæ Scientiæ."—*Nov. Org.* I. 1.

(heat, for instance) occurs under various conditions, then with these instances we should compare others, where, under similar conditions, the same phenomenon does *not* occur. The former instances, which Bacon calls “positive” (*instantiæ positivæ sive convenientes*) are similar with respect to the phenomenon under consideration; the latter, which he calls “negative” (*instantiæ negativæ vel contradictivæ*) are similar with respect to the conditions. What is required, therefore, is a comparison of the positive instances with each other, and also with the negative. Thus if, for instance, heat is the phenomenon under consideration, the sun that gives warmth is a positive instance; while, on the other hand, the moon and stars that give no warmth are negative. From the comparison of these it is clear that a celestial luminary is by no means an essential condition of light.* Those conditions alone are necessary that are connected with the phenomenon in every instance; those that are not are merely contingent. There is heat connected with phenomena of light, but there is also heat without light, and light without heat; hence light is not an essential factor of heat.†

* Or rather, light is not a necessary consequence of a celestial luminary.—J. O.

† Compare *Nov. Org.* II. 11—20.

Thus, by accurate and frequent comparison, non-essential conditions are detected, and by their exclusion (*rejectio*) the essential conditions are attained. Thus experience proceeds from fact to fact till it arrives at a law—from the singular to the universal. It confirms fact by experiment; discovers, by a fitting comparison of facts, the universal law, principle, or axiom by which the operation of nature is guided. Thus, to speak in the manner of Bacon, experience ascends from the experiment to the axiom. This is the method of *Induction*, which Bacon therefore calls the true key to natural philosophy. To deduce axioms from experiments, “we must first prepare a complete and accurate natural and experimental history. This constitutes our foundation, for we must not imagine or invent, but discover the operations of nature. But natural and experimental history is so varied and diffuse in its material that it confounds and distracts the human understanding, unless it be fixed and exhibited in due order. Therefore tables and co-ordinations of instances must be framed in such a manner and order that the understanding may be able to act upon them. Even when this is done, the understanding, left to itself and its own operation, is incompetent and unfit to form axioms, without direction and support. Hence we must, in the

third place, apply a true and legitimate Induction, which is the very key of interpretation.”*

II. THE IMPORT OF NEGATIVE INSTANCES.

CRITICAL EXPERIENCE.

BACON calls his own induction “legitimate” and “true” to distinguish it from another that is neither legitimate nor true, that proceeds without rule, and arrives at false results. Experience and induction are in themselves so far from new, that, on the contrary, they form the daily sustenance of our knowledge. Every day makes an addition to our experience; and at last, by summing up our daily experiences, we arrive at a total result, which has, for us, the force of an axiom. This inference of a supposed axiom from a fact is also of the inductive kind; and by means

* “Primo enim paranda est Historia Naturalis et Experimentalis, sufficiens et bona; quod fundamentum rei est; neque enim fingendum aut excogitandum, sed inveniendum, quid natura faciat aut ferat. Historia vero Naturalis et Experimentalis tam varia est et sparsa, ut intellectum confundat et disgreget, nisi sistatur et compareat ordine idoneo. Itaque formandæ sunt Tabulæ et Coordinationes Instantiarum, tali modo et instructione ut in eas agere possit intellectus. Id quoque licet fiat, tamen intellectus sibi permissus et sponte movens incompetens est et inhabilis ad opificium axiomatum, nisi regatur et muniatur. Itaque tertio, adhibenda est Inductio legitima et vera, quæ ipsa Clavis est Interpretationis.”—*Nov. Org.* II. 10.

of this sort of induction is found that wisdom of ordinary life of which we have an instance in the "weather-wisdom" of a peasant. But just in the same manner we are convinced every day that our experiences thus formed are insecure,—that our inferences are incorrect. A new experience, on which we did not reckon in summing up those preceding, shows that our rule was false; and a single instance is sufficient to refute the validity of a supposed law. If that which, according to our rule, ought to occur, fails to occur on one occasion only, this is a proof that the rule was no better than an "idol." Such a single case, in opposition to a rule, is a *negative instance*. And in the course of our ordinary experience we constantly meet with such negative instances that annihilate the results based upon our previous experience, and, on that account, received by us with implicit faith. Rules for the weather are constantly made ridiculous by negative instances; and ordinary experience is not more certain than the almanac. Experience does not become certain till it has no more to apprehend from negative instances; till its results are no longer exposed to the risk of being overthrown every moment by some unexpected occurrence; till, in a word, there are no unforeseen cases by which it can be opposed. How is this

security to be attained? In one way alone. Experience must, as far as it is possible, foresee every case ; must guard itself betimes against the danger of negative instances, by taking them into consideration ; nay, before it draws an inference it must itself seek for the negative instances, that these may not afterwards rise in opposition and overthrow premature results. To distinguish this course from that of ordinary experience, Bacon calls it “ methodical ; ” to distinguish it from ordinary induction, he calls it “ true.” An experience can only be refuted by the testimony of opposing facts ; and if there is no fact left to bear witness against it, it is altogether irrefutable,—stands perfectly firm. The only defence which experience can provide against such a testimony is by seeking it out, and eliminating it, before a final decision is made. As in a lawsuit it should, as it were, confront the positive with the negative instances, and after the hearing pronounce a sentence, according to the approved maxim of every fair judge : *Audiatur et altera pars !*

Negative instances render experience difficult, and, in a scientific sense, legitimate. Without them it is easy and uncritical. Thus Bacon assigns the highest importance to negative instances ; they are with him the criterion of empirical truth,—its only voucher. We can vouch

for a truth when it cannot be contradicted ; we can vouch for empirical truth when experience does not pronounce any one of its judgments, without taking into consideration, elucidating and solving all contradictory cases. This can only be effected by means of negative instances, which compel experience to pause at every step, and provide it with a clue by which it slowly and surely approaches a fixed goal, instead of prematurely hurrying towards one that is merely illusive. Thus is experience placed beyond the reach of contradiction. " I think," says Bacon, " that a form of induction should be introduced, which from certain instances should draw general conclusions, so that the impossibility of finding a contrary instance might be clearly proved."* By an unremitting comparison of positive with negative instances, necessary conditions are separated from contingencies. Hence Bacon calls the comparative understanding, the " divine fire " by which nature is sifted, and the laws of her phenomena are brought to light. " A solution and separation of nature must be effected, not indeed

* " Visum est ei talem inductionis formam introduci, quæ ex aliquibus generaliter concludat ; ita ut instantiam contradictoriam inveniri non posse demonstretur."—*Cogitata et Visa*. It is scarcely necessary to state that throughout this treatise Bacon speaks of himself in the third person.—J. O.

by fire, but by the understanding, which is, as it were, a divine fire.”* “Man is only permitted to proceed first by negatives, and then to arrive at affirmatives, after every kind of exclusion.”†

We have already seen how the Baconian science takes its origin from doubt, which leaves it nothing but pure experience. It does not adhere to doubt like the sceptics, but strives after certain knowledge, though still taking doubt as a constant guide through all its investigations, and concluding none till this guide has been heard and satisfied. That first doubt, which precedes all science, makes this science purely empirical. The second doubt, that accompanies science at every step, renders experience critical. Without the first, experience, even in its first origin, would be encumbered with idols, and never attain a clear result; without the second, it would grasp idols instead of truths in its path, and thus become credulous and superstitious. Against this contingency it is protected by unremitting doubt, by

* “Naturæ facienda est prorsus solutio et separatio, non per ignem certe, sed per mentem, tanquam ignem divinum.”—*Nov. Org.* II. 16.

† “(Homini) tantum conceditur, procedere primo per negativas et postremo loco desinere in affirmativas post omnimodam exclusionem.”—*Nov. Org.* II. 15.

the critical understanding, that against every positive instance invokes a negative. Whence, then, do credulity and superstition derive their origin? Only from the want of critical understanding,—from the disregard of negative instances,—from an easy and indolent contentment with a few positive instances picked up at pleasure. If the negative instances had obtained a fair hearing, there would not have been so many rules about the weather; and the many marvels that have been ascribed to inexplicable and demoniac powers would never have been believed. Thus, for instance, we are told of somnambulists who predict the future. The credulous understanding is satisfied with one (perhaps doubtful) instance, spreads it about, becomes superstitious, and renders others superstitious likewise. The critical understanding asks, Where are the somnambulists who do not prophesy, or whose predictions are not fulfilled? Without doubt they might be found if they were only sought; and one single negative instance would be sufficient to banish from the whole world a belief in the infallibility of such prophecies,—to convince the whole world that in these cases other powers are at work than the demoniac or the divine. If every belief of the kind that appeals to certain cases, to

certain experiences, were forced to undergo experimentally the ordeal of negative instances, how few would endure the test! What would become of Swedenborg and Cagliostro? "It was well answered by him," says Bacon, "who, being shown in a temple the votive tablets of those who had escaped the peril of shipwreck, and being, moreover, pressed whether he would then acknowledge the power of the gods, asked where were the portraits of those who had perished after making their vows. The same may be said of nearly every kind of superstition, as that of astrology, dreams, omens, retributive judgments, and the like, in which men, delighted with vanities of the sort, observe the events when they are fulfilled, but neglect or pass them by, though much more numerous, whenever a failure occurs. But with much more subtilty does this evil insinuate itself into philosophy and the sciences, in which a maxim that has once been accepted infects and governs all others, though much more worthy of confidence. Besides, even if that eagerness and vanity, to which we have referred, did not exist, there is still this peculiar and perpetual error in the human mind, that it is swayed and excited more by affirmatives than by negatives; whereas it ought duly and regularly to regard both with impartiality; nay, in establish-

ing any true axiom there is greater force in the negative than in the positive instance."* For manifestly that which is refuted by a single instance cannot be proved by an hundred.

The negative instances, of which Bacon would make methodical use, stand in his philosophy as a security against too credulous reliance on individual experience; against all hasty assumption; in a word, against "idols." They constitute, in the philosophical understanding, the spirit of contradiction; the logical goad of that "enlightenment" (*Aufklärung*) that the successors of Bacon have diffused over the earth. The Anglo-Gallic "enlightenment," in every case, directs this weapon

* "Recte respondit ille, qui, cum suspensa tabula in templo ei monstraretur eorum qui vota solverant quod naufragii periculo elapsi sint, atque interrogando premeretur anne tum quidem deorum numen agnosceret, quæsivit denuo, *At ubi sint illi depicti qui post vota nuncupata perierint?* Eadem ratio est fere omnis superstitionis, ut in astrologicis, in somniis, ominibus, nemesibus, et hujusmodi; in quibus homines delectati hujusmodi vanitatibus advertunt eventus ubi implentur, ast ubi fallunt (licet multo frequentius) tamen negligunt et prætereunt. At longe subtilius serpit hoc malum in philosophiis et scientiis; in quibus quod semel placuit reliqua (licet multo firmiora et potiora) inficit et in ordinem redigit. Quinetiam licet abfuerit ea quam diximus delectatio et vanitas, is tamen humano intellectui error est proprius et perpetuus, ut magis moveatur et excitetur affirmativis quam negativis; cum rite et ordine æquum se utrique præbere debeat; quin contra, in omni axiomatico vero constituendo, major est vis instantiæ negativæ."—*Nov. Org.* I. 46.

against the *Idola Theatri*, with which it contends, and batters down authorised systems by advancing facts in opposition; that is to say, negative instances. *When Locke, for example, opposes the Cartesian theory of "Innate Ideas," by citing the cases of individuals who are destitute of the ideas that have been called "innate," it is in a truly Baconian spirit that, while attacking the assumed doctrine, he appeals to the negative instance. And with this negative instance he is satisfied that he has completely refuted Descartes.

Mere experience will not guard us against idols, much less the unassisted understanding. *Critical* experience can alone defend science against illusion. For mere experience does not observe negative instances, but collects cases, and from them hastily derives axioms; while as for the unassisted understanding, it derives its knowledge solely from itself, without observing any external instances at all. Thus neither attain true copies of things. On the other hand, *critical* experience combines the wealth of experience with the force of the understanding, thus avoiding the one-sidedness and consequently the errors of both. It collects by sifting, and is thus both experimental and intellectual; is a rational thinking experience. Here alone does Bacon find the salvation of science; in

the union of reason and experience, while the deplorable condition of science he attributes to their separation. "We think," he says, "that we have established for ever a real and legitimate union between the empirical and rational faculties, whose morose and inauspicious divorces and repudiations have brought so much disturbance to the human family."

Thus does Bacon oppose his own point of view to that of the past, as new and more elevated, reconciling as it does the stubborn differences that have hitherto existed. This opposition of faculties was necessarily unfruitful in its results, and it is only from their union that a fruitful and inventive science can take its beginning. In that happily figurative language, which constitutes one of the great qualities of his style, Bacon compares mere experience to the ants, that can do nothing but collect; the unaided understanding to spiders, that spin webs from themselves; the thinking experience (which is his own) to the bees, that collect and separate at the same time. He says: "Those who have hitherto treated of the sciences have been either empiricists or dogmatists. The former, like ants, only heap up, and use what they have collected; the latter, like spiders, spin webs out of themselves; the method of the bee is between these, it collects matter

from the gardens and the fields, but converts and digests it through its own faculty. Nor does the true labour of philosophy differ from that of the bee; for it relies neither solely nor principally on the powers of the mind, nor does it store up undigested in the memory the matter derived from Natural History and mechanical experiments, but it stores such matter in the understanding, after first modifying and subduing it. Therefore, from a closer and purer alliance of these faculties (the experimental and the rational) than has yet been accomplished, we have much to hope.* The matter collected by experience is wrought into science by methodic treatment; that is to say, by true induction, in relation to which it stands as an utensil to be employed, or as a wood to be cleared.†

* “Qui tractaverunt scientias aut Empirici aut Dogmatici fuerunt. Empirici, formice more, congerunt tantum et utuntur; Rationales, araneorum more, telas ex se conficiunt: apis vero ratio media est, quæ materiam ex floribus horti et agri elicit, sed tamen eam propria facultate vertit et digerit. Neque absimile philosophiæ verum opificium est; quod nec mentis viribus tantum aut præcipue nititur, neque ex historia naturali et mechanicis experimentis præbitam materiam, in memoria integram, sed in intellectu mutatam et subactam, reponit. Itaque ex harum facultatum (experimentalis scilicet et rationalis) arctiore et sanctiore fœdere (quod adhuc factum non est) bene sperandum est.”—*Nov. Org.* I. 95. Compare also *Cogitata et Visa*.

† Thus in the “Parasceve” Bacon describes the “*Historia Naturalis*” as “*veræ inductionis supellex sui silva.*”

III. INDUCTION AND DEDUCTION IN THE BACONIAN SCIENCE.

Thus the first problem is solved. It is shown how pure experience proceeds from doubt or the destruction of idols, and how this experience results in science. It is shown what road leads from observation to law, from experiment to axiom. The sensuous perception with which experience sets out frees itself from *its* idols (delusions of the senses) by rectifying experiments. The inference of the law from the fact, with which experience ends, frees itself from *its* idols (fallacious conclusions) by a careful consideration of negative instances and a comparison of them with the positive. This comparison is the second experiment. I, as it were, ask nature whether the law that is found is true, and will stand every test. "An experiment," says a modern writer, "is a question to which nature gives the reply." This proposition is so correct that we may also assert its converse. Every question put to nature is an experiment; and I question nature by directing myself to her *instances*, and compelling them to render an account of themselves. Nature is compared by Bacon to Proteus, who only answers when he is

compelled and bound.* The first experiment rectifies the perception, the second rectifies the inference.

The question, then, that remains is this: how can knowledge, attained by the way of experience, become *invention*? For invention is the goal which is steadily kept in view by the Baconian philosophy. The simple answer is: by the application of the discovered laws. If this application is possible, invention cannot fail. If I know the forces by which lightning is guided and attracted, I am certain of my lightning-conductor as soon as the required forces are at my disposal. This application of known natural forces is a new question to nature, practically put, — a new *experiment*. Therefore experiment is not only the means by which experience becomes science, but also the means by which science becomes invention. Making experiments, I proceed from observation to axiom, from axiom to invention. “There is left for us,” says Bacon, “pure experience, which, if it offers itself, is called chance; if it is sought, is called experiment. But this kind of experience is nothing but a broom without a band (as the saying is), a mere groping in the dark, as of men who, at night, try all means of

* Compare “De Augm. Scient.” II. 2. Also the “Wisdom of the Ancients,” 13.

discovering the right road, when it would be much more expedient to wait for the dawn of day, or to kindle a light and then proceed. On the contrary, the true order of experience first kindles the light, then shows the way by means of this light; beginning with a regulated and digested, not a misplaced and erratic course of experiment, thence deducing axioms, and then, from the axioms thus established, making new experiments. Not even the Divine Word operated on the mass of things without order. Let men, therefore, cease to wonder, if the whole course of science be not run, when they have altogether wandered from the path; quitting and deserting experience entirely, or entangling themselves and roaming about in it, as in a labyrinth; when a true orderly method would lead them by a sure path through the woods of experience to the open daylight of axioms.”*

* “*Restat experientia mera, quæ, si occurrat, casus; si quæsitæ sit, experimentum nominatur. Hoc autem experientiæ genus nihil aliud est, quam (quod aiunt) scopæ dissolutæ, et mera palpato, quali homines noctu utuntur, omnia pertentando, si forte in rectam viam incidere detur; quibus multo satius et consultius foret diem præstolari, aut lumen accendere, et deinceps viam inire. At contra, verus experientiæ ordo primo lumen accendit, deinde per lumen iter demonstrat, incipiendo ab experientia ordinata et digesta, et minime præpostera aut erraticæ, atque ex ea educendo axiomata, atque ex axiomatibus constitutis rursus experimenta nova; quum nec verbum divinum*

The Baconian *Induction* proceeds from experiment to axiom; the Baconian *deduction* from axiom to experiment.* The former is the method of interpretation, the latter that of application. The former ends with the discovery of a law, the latter with an invention. Thus does Bacon's philosophy, like his life, terminate with the triumph of experiment.

in rerum massam absque ordine operatum sit. Itaque desinant homines mirari si spatium scientiarum non confectum sit, cum a via omnino aberraverint; relictæ prorsus et deserta experientia, aut in ipsa (tanquam in labyrintho) se intrinando et circumcurando; cum rite institutus ordo per experientiæ sylvas ad aperta axiomatum tramite constanti ducat." — *Nov. Org.* I. 82.

(With respect to the curious expression, "*Scopæ dissolutæ*," which occurs in this passage, and which is rendered above, "a broom without a band," Mr. Spedding remarks: "I do not remember any proverbial expression which answers to this in English; but the allusion is to the want of combination and coherency in these experiments."—J. O.)

* Compare these words: "*Indicia de Interpretatione Naturæ complectuntur partes in genere duas; primam de educendis aut excitandis axiomatibus ab experientia; secundam de deducendis aut derivandis experimentis novis ab axiomatibus.*" — *Nov. Org.* II. 10. (In the places marked by italics, Dr. Fischer respectively reads "*Judicia*" and "*experimentis.*" — J. O.)

CHAP. V.

PREROGATIVE INSTANCES AS AIDS TO INDUCTION.—NATURAL
ANALOGIES AS PREROGATIVE INSTANCES.

THE difficulties to which the method of induction is exposed from a scientific point of view are obvious ; and Bacon was not the man to conceal from himself the difficulties of his subject, either through fear or negligence. Indeed, difficulties that terrify others are to him no more than incitements that stimulate his enterprising and circumspect mind. He seeks them out, and makes them conspicuous in order to remove them by as many expedients as he can discover. In such expedients, when he has found them, Bacon really triumphs. Here he is in his proper element ; — endowed, not with a systematic, but with an inventive intellect. To judge him as a system-maker (a character to which he does not aspire), is simply to misunderstand him ; he is not to be in the least confuted by the proof that his method is fragmentary, and leads to no final result. Such a proof would be as easy as it would be valueless. Bacon himself would willingly bear the

reproach, and would convert it into a defence. "It is the very nature of my method," he would say, "that it neither seeks nor desires a final result. If I have indicated the necessary goals, shown the right way, travelled part of this way myself, removed difficulties, and devised expedients, I have done enough, and may leave the rest to future generations. They will go further than I; but it is to be hoped they will not arrive at an absolute conclusion. It is sufficient, to guide men into the path of progressive cultivation, to furnish them with means for the extension of their knowledge, and consequently of their dominion. On this path every point affords a triumph, and constitutes a goal in itself. As for the last goal,—the conclusion of all toil,—those alone can reach it who take *no* part in the great race of human faculties." Thoroughly to understand such minds as that of Bacon, we must look for them where their own method leaves them in the lurch; where they are forced to exert their own personal faculties; where they are compelled to fill up the gaps in their theory by means of their genius, of their individual tact, of that *something* which I may call the generalship of philosophy. If Bacon's historical importance is most conspicuous when he formulises his problem, and propounds his method, his personal peculiarity,

his own especial talent is most visibly shown when, with expedients of his own invention, he defends himself against the difficulties by which his method is impeded. Here we can see who is master and who is disciple ; for it commonly happens that a gap in the master's method is also a gap in the head of the scholar, but none at all in the head of the master. Thus, even at the present day, the disciples of Bacon boast much of Bacon's method when they oppose the contrary tendency, which is its complement. They do not know how much this tendency was akin to the mind of Bacon ; how he grasped it involuntarily and instinctively when his method abandoned him. They do not know that *he*, the master, clearly perceived those defects in his method which *they*, the disciples, would willingly ignore. When Bacon can proceed no further as an experimental investigator of nature, he becomes, in spite of his method, a speculative natural philosopher. We have designedly pointed out the affinity between Bacon and his intellectual antipodes, that we may show how comprehensively he thought, and how he could complete himself from his own resources. Thus, in the foundation of philosophy, he agreed with Descartes ; in his physical views, with Spinoza ; and even in the auxiliary forces (*Hülfsstruppen*) of his

philosophy a similarity to the speculative ideas of Leibnitz, Herder, and Schelling may be discovered.

I. THE DEFECTS OF THE BACONIAN METHOD.

What is the purpose of the inductive method in Bacon's sense of the word? It would reduce natural science to axioms as indisputable as those of mathematics, and these axioms it would discover on the path of critical experience by an unremitting observation of negative instances. Now here arises a double difficulty:

1. The observation of negative instances by no means implies their exhaustion; and yet they must be exhausted if an axiom is to be established. Against the axiom it must no longer be possible to oppose a single negative instance; and this impossibility must be capable of demonstration.* That we cease to find negative instances is not enough; we must also be able to prove that there are really no more. Now this proof can never be furnished by experience, which cannot even assert, much less prove, that a contradictory instance is impossible; for nature is richer than experience. Bacon rightly desires that science

* Vide p. 104.

should seek after axioms in that sense of thorough universality and necessity that prohibits any exception. But this very universality, in all its strictness, is never to be completely attained by the way of experience, but can only be approached. By the method of induction, the negative instances can never be drained to the lees.

2. But the very observation of negative instances, consisting as it does of a careful comparison between positive and contradictory cases, is attended with difficulty. So long as these cases balance each other, very many of them must be collected, and an accurate comparison must be continued through a long series of them, before we can so much as attempt to deduce an axiom from the facts before us. Everything depends on the exclusion of contingencies; and to effect this purpose many cases, much time, and much labour, are required. An inference drawn from a *few* cases has manifestly more to fear from negative instances than one that has been drawn from *many*. In the number, therefore, of cases compared, lies the only possible guarantee against the existence of negative instances.

II. THE PREROGATIVE INSTANCES.

The difficulties are manifest. Means are to be sought for removing, or at least lightening them. Such means are the *auxilia mentis*, enumerated by Bacon, who, moreover, expatiates fully on *one* of them in the second book of his “*Novum Organum*.”*

This one expedient is the chief of them all; its use is to support the method by completing it on the one hand, and facilitating it on the other. The method consists in the separation of contingent from necessary conditions, and its difficulty lies in the breadth of the required material, — in the tediousness, minuteness, and insecurity of the comparison. By facilitating the work of separation, we likewise shorten it, rendering the contingent conditions more easily discernible, the essential more capable of supervision. This can only be effected by reducing the many cases to a few, so that a few will serve me in the place of many. But by what right can I do this? So long as one case is as worthy

* Compare *Nov. Org.* II. 21—52. The second vol. of the “*Novum Organum*” is unfinished, as well as the “*Instauratio Magna*,” of which the whole “*Novum Organum*” was to have formed the second part.

of attention as another, so long as in this respect opposite cases are equally balanced, we must obviously have many of them before we can make any efficient comparison at all. But if there are certain cases, one of which is equal in value to a series of others, we shall then rightly consider one of the former, instead of many of the latter, and thus the more speedily obtain our result. Such cases are more worthy of our observation than the rest, and have, by their very nature, a sort of prerogative. Hence they are called "prerogative instances" by Bacon. Without doubt there are cases in which a given natural phenomenon is exhibited more purely and free from mixture than in others; in which the contingent circumstances, being fewer, may be more rapidly excluded, and therefore the essential conditions more easily and clearly ascertained. A prerogative instance facilitates the work of separation, inasmuch as it shows me, almost at a single glance, the true difference (*vera differentia*), the operative nature, the law of the phenomenon. What I should otherwise be forced to seek with great toil, and by a tedious comparison from a multitude of instances, I here find at once presented in a single phenomenon. Thus, for example, if the question is of specific gravity, the mere fact that quicksilver is so much

heavier than gold is sufficient to show that the specific gravity of a body is regulated by its mass, not by the cohesion of its parts. This one observation will save me many others.* Or if the question is respecting a phenomenon that is to be found in all bodies, I shall find the purest specimen in such bodies that have little or nothing in common with others. Such “solitary instances,” as Bacon calls them, save us the trouble of future comparison. Thus, for example, the phenomenon of colour is discovered most readily, and with the least heterogeneous admixture, in prisms, crystals, and dewdrops; for these have little or nothing in common with other coloured bodies, such as flowers, stones, metals, varieties of wood, &c. They are, in this respect, single instances (*instantiæ solitariæ*); and from observing them we easily arrive at the result, that “colour is nothing but a modification of the image of the incident and absorbed light; in the former case, by the different degrees of incidence; in the latter, by the textures and various forms of bodies.”†

* Such prerogative instances are called by Bacon: *Ostensivæ, Liberatæ, Prædominantes, and Elucescentiæ. Nov. Org. II. 24.*

† “Facile colligitur quod color nil aliud sit quam modificatio imaginis lucis immissæ et receptæ; in priore genere per gradus diversos incidentiæ, in posteriore per texturas et varios schematismos corporis.”

Göthe, in his "Materials towards the History of the Theory of Colours," has made mention of Bacon; but, strangely enough, he has not cited this remarkable passage. Evidently he was not aware of it; for, if he had been, he would certainly have referred to it, inasmuch as it confirms his own view. In fact, it contains the principle of Göthe's theory before Newton. Göthe is altogether ignorant of the Baconian theory of Prerogative Instances, otherwise he would not have said that to Bacon, in the broad region of phenomena, all things were alike. Indeed, he treats the general method of Bacon with too much contempt, ranking it no higher than ordinary experience, and accusing it of leading mankind to a boundless empiricism, "whereby they acquired such a horror of all method, that they regarded chaotic disorder as the only soil in which science could really thrive." This reproach applies to most of those who, at the present day, profess to be followers of Bacon, but not to Bacon himself, whose intellect was not only methodical, but even speculative. His explanation of the phenomenon of colour, which is merely given by way of example, while he is treating of another subject, expresses the same fundamental thought that Göthe sought to establish,—as he believed, for the first time,—against Newton. Göthe says of

Newton's Theory of Colours: — "By his desire to keep light alone in view, Newton seems to set out from a simple principle, but he imposes conditions upon it, as we do; while, however, he denies their integrating part in producing the result." These conditions are bodies transparent and opaque, and the share that they take in the production of colour is clearly and definitely declared by Bacon in the passage cited above.*

III. NATURAL ANALOGIES.

Prerogative Instances, of which Bacon enumerates twenty-seven, are phenomena that pre-eminently rivet, and, moreover, merit our attention. They are *pregnant* instances from which much may be inferred by an accelerated induction, by a rapid separation of the contingent from the necessary. But, according to Bacon, all induction, all methodical experience is directed towards real natural philosophy, which, like every earnest science, necessarily strives after perfection, and, from a knowledge of the individual, seeks a knowledge of the universal. To this truly scientific impulse Bacon was by no means foreign. Like every other great thinker, he possessed it;

* Vide Appendix B.

the knowledge of the *whole* was ever before his eyes, as the last point to which natural science should tend; only, according to his view, it should be attained by the labour of bees, not by that of spiders. Induction proceeds from observation to axiom, from fact to law; when it has explained a few facts, it is naturally impelled to explain more, to extend the compass of its laws, and to progress continually in the generalisation of its axioms. The most universal axiom is that of *entire* nature; the highest law is that which explains *all* phenomena. As every law expresses the unity of certain phenomena, so does this highest law express the unity of nature as a whole; the *unitas naturæ*. This is the goal which Bacon proposes to science; to this his method is expressly directed. He did not lay down the unity of nature as a principle, but would learn it from nature herself, would infer it from her phenomena. Like Spinoza, he sees in things a *natura naturata*, at the basis of which, as an operative power, lies the *natura naturans*, which, in his eyes, is also a common source of all things, — a *unitas naturæ*. However, while Spinoza, from the *natura naturans* would deduce the *naturata*, Bacon, on the other hand, would form the *naturata* induce the *naturans*.

He therefore seeks phenomena in nature, that point to the unity of the whole, open a view into

the unity of entire nature, and thus assist the inferences of induction. If there are certain phenomena which, more than others, lead us to surmise the unity of the whole, they rivet our attention, when directed to the whole, as so many prerogative instances. Of what kind these pregnant instances must be, is obvious enough. They are the prominent resemblances in the various formations of nature, the significant analogies that announce to us a unanimity in the operative forces. Here Bacon regards induction in the light of analogy, that is, he leads the investigations of physical science to the affinity of things, by directing them to the unity of the whole.* He shows as it were nature's family likenesses, and we have now to find the pedigree of things, together with its roots.

In the exhibition of analogies, Bacon displays a characteristic peculiarity of his mind. To regard induction in the light of analogy, the things analogous must be discovered and correctly observed. Now the discovery is made not by the method, but by the eye of the investigator; the method follows the discovery, when the latter is

* Compare *Nov. Org.* II. 27: "Inter Prærogativas Instantiarum ponemus sexto loco Instantias conformes, sive proportionatas; quas etiam parallelas, sive *similitudines physicas*, appellare consuevimus."

already made. Moreover, it is not by mere sensuous perception, though aided by artificial instruments, that analogies are detected, but by the further penetration of the mind. The important analogies are those internal, secret resemblances, that are not to be found on the surface of things, —not to be apprehended at a glance by the senses. A speculative spirit, a genius for investigation, must seek them out; the tact that accompanies genius must light upon them. Both these may be methodically cultivated, but neither can be given. Every true analogy is a correct combination made by a judicious intellect. Dexterous as Bacon is in supporting his method by means of striking combinations, he still cautiously restrains the readily combining intellect by the aid of his methodical spirit. I will not assert that Bacon himself never transcended these bounds, that all his analogies were as felicitous as they are bold and ingenious; but with respect to the scope and scientific value of analogy, he was perfectly clear. He sought an equilibrium between his genius and his method; by which, alternately, his mind was ever influenced. Even before he adduces his analogies — (as mere examples, which he scatters about heedlessly as he goes along, but which would afford an ample sustenance to many a natural philosopher of modern

times), he sets judicious limits to their importance, and the use that is to be made of them. To him they appear rather as suggestive than as sources of exact knowledge, and serve more to direct the contemplative understanding to the whole than to instruct it in details. The analogies are, as it were, the first chords that we hear of the harmony of the universe. "They are, as it were," says Bacon, "the first and truest steps towards the union of nature. They do not at once establish an axiom, but only indicate and observe a certain conformity of bodies to each other. But although they do not conduce much to the discovery of general laws (or forms), they are, nevertheless, of great service in disclosing the fabrication of parts of the universe, and practise a sort of anatomy upon its members. Thence they sometimes lead us, as if by hand, to sublime and noble axioms, especially those that relate to the configuration of the world rather than to simple natures and forms." *

* "Sunt tanquam primi et infimi gradus ad unionem Naturæ. Neque constituunt aliquod axioma statim ab initio, sed indicant et observant tantum quendam consensum corporum. Attamen licet non multum promoveant ad inveniendas formas, nihilominus magna cum utilitate revelant partium universi fabricam, et in membris ejus exercent veluti anatomiam quandam; atque proinde veluti manu-ducunt interdum ad axiomata sublimia et nobilia, præsertim illa quæ ad mundi configurationem pertinent, potius quam ad naturas et formas simplices." — *Nov. Org.* II. 27.

And even while Bacon is occupied in setting forth his analogies, which rush through the world with the boldest combinations, he interrupts himself, remarks anew the use of analogy to science, and also the danger to which this sort of combination is exposed. This is quite right. It is only with the aid of analogy that induction can bring real unity into natural science, and discover that spiritual connection of things that can never be found through a mere description of parts, and is at last lost sight of altogether. "It is especially to be recommended, and more frequently to be suggested, that the diligence of man in the investigation and compilation of natural history be henceforward entirely changed and converted to the contrary of that which has been hitherto in use. Hitherto the industry of man has been great and curious in noting the variety of things, and in explaining the accurate differences of animals, vegetables, and minerals, many of which are rather the sport of nature than of any real utility to science. Things of this sort are amusing, and sometimes not without practical use, but they contribute little or nothing towards the investigation of nature. Our labour, therefore, must be reversed, and directed to the inquiry and notation of the resemblances and analogies of things, both in the whole and in part. For these analogies

unite nature, and lay the foundation of science.”*
 “It seems of no great utility to recount or know the marvellous varieties of flowers, whether of iris or tulip, of shells, dogs, or hawks. For things of this sort are nothing but the sports and wantonness of nature, and nearly approach the nature of individuals. By means of these we have a minute knowledge of things, but scanty and often unprofitable information with respect to science. Yet these are the things of which common natural history makes a boast.”† Nevertheless, analogies ~~must~~ be cautiously and critically sought; for if,

* “*Illud omnino præcipiendum est et sæpius monendum, ut diligentia hominum in inquisitione et congerie Naturalis Historiæ deinceps mutetur plane, et vertatur in contrarium ejus, quod nunc in usu est. Magna enim hucusque atque adeo curiosa fuit hominum industria in notanda rerum varietate atque explicandis accuratis animalium, herbarum, et fossilium differentiis; quarum pleræque magis sunt lusus naturæ quam seriæ alicujus utilitatis versus scientias. Faciunt certe hujusmodi res ad delectationem, atque etiam quandoque ad praxin; verum ad introspectiendam naturam parum aut nihil. Itaque convertenda plane est opera ad inquirendas et notandas rerum similitudines et analogia, tam in integralibus quam partibus. Illæ enim sunt quæ naturam uniunt, et constituere scientias incipiunt.*” — *Nov. Org.* II. 27.

† “Non multum ad rem faciunt memorare aut nosse florum, iris aut tulipæ, aut etiam concharum aut canum aut accipitrum eximias varietates. Hæc enim hujusmodi nil aliud sunt quam naturæ lusus quidem et lascivia; et prope ad naturam individuorum accedunt. Itaque habent cognitionem in rebus ipsis exquisitam; informationem vero ad scientias tenuem et fere supervacuam. Atque hæc sunt tamen illa in quibus naturalis

on the one hand, the endless varieties of things are often a mere sport of nature, so may the analogies, discovered by our own combinations, easily prove to be a mere sport of the understanding or the imagination. We make analogies that are not in nature; find analogies that in truth are none; fix our attention on casual, non-essential points of resemblance, and thus infer much from that which says nothing. Sports of this sort, to which a speculative and heedless imagination or a dreamy intellect willingly abandons itself, have peopled the region of natural science with a multitude of idols. If analogies are to be fruitful in results, they must embrace *essential* resemblances; they must be, as it were, learned by listening at the secret workshop of nature. Hence Bacon proceeds to insist: "That in all these (analogies) a severe and rigorous caution be observed, that we only accept, as *similar* and *proportionate* instances, those that denote natural resemblances,—that is to say, real, substantial, and immersed in nature; not merely casual and superficial, much less superstitious or exceptional, like those always brought forward by

historia vulgaris se jactat."—*Descript. Globi Intellectualis*, cap. iii. [This citation is added to the note in the original, but it accords so well with the language of the text, that I have ventured to place it there.—J. O.]

the writers on natural magic (men of the least account, and scarcely worthy of mention in serious matters, such as those of which we now treat), who with much vanity and folly describe, and sometimes invent, idle resemblances and sympathies.”*

The analogies themselves, that Bacon cites as examples, are of the boldest kind, seeing far and anticipating much, — attractive points of view, affording a rich and fertile prospect. With a few strokes he sketches the great pedigree of things, and shows by the most comprehensive combinations how everything in the world belongs to *one* family. Never, perhaps, was such a promising view into the connection of the universe afforded in the form of concise aphorism and cursory example. Bacon begins by comparing the mirror with the eye; the ear with the echo. The mirror and the eye reflect rays of light; the ear and the echo reflect the undulations of sound. Bacon concludes that there is a general analogy between the organs

* “Verum in his omnino est adhibenda cautio gravis et severa, ut accipiantur pro instantiis conformibus et proportionatis, illæ quæ denotant similitudines physicas; id est, reales et substantiales et immersas in natura, non fortuitas et ad speciem; multo minus superstitiosas aut curiosas, quales naturalis magiæ scriptores (homines levissimi, et in rebus tam seriis quales nunc agimus vix nominandi) ubique ostentant; magna cum vanitate et desipientia, inanes similitudines et sympathias rerum describentes atque etiam quandoque affingentes.” — Lib. II. 27.

of sense and reflecting bodies; between organic and inorganic nature. The idea of an analogy pervading all natural phenomena is clearly before his mind. All the relations and moods of inanimate nature are perceptible, and when they are not perceived by us, this is owing to the nature of our own bodies, to which so many senses are wanting; however, there are more (or at least as many) movements in inanimate than senses in animated bodies. Thus, for example, as many kinds of painful sensation as are possible to the human frame, so many kinds of motion, such as squeezing, pricking, contraction, extension, &c., are there in inanimate bodies; only these, through the want of vitality, do not feel them.”*

The comparison between organic and inorganic nature in general is carried by Bacon into analogies between details. He remarks similar formations between plants and stones, and by way of example compares gum with certain gems. These, according to him, are exudations and filterings (*percolationes*) of juices, the sap of trees exuding in the shape of gum; the moisture of rocks, after the same fashion, as a transparent gem. Hence the brightness and clearness of the vegetable and mineral formations, both of which

* These analogies are all to be found in *Nov. Org.* lib. II. 27.

are, as it were, filtered juices. Thus, among animals, the wings of birds are more beautiful and more vividly coloured than the hair of beasts, because the juices are not so delicately filtered through the thick skin as through the quills. In the formation of plants Bacon remarks a similar structure in the different parts, and in the spirit of modern morphology (which arose so long after him) calls attention to the fact, that in vegetable growth the constituent parts, both above and below, spread out towards the circumference. In their position, at opposite extremities of the plant, Bacon finds the only distinction between the branches and the roots. The roots are branches working their way downwards into the earth; the branches are roots striving upwards towards the air and sun. In the animal kingdom Bacon compares the fins of fishes with the feet of quadrupeds, and the feet and wings of birds; and the formation of teeth with that of beaks.

The structure of the plant he compares with that of man, saying that the latter is, as it were, a plant inverted (*planta inversa*). The brain in man, whence the nerves take their origin, to spread in countless ramifications through the entire frame, corresponds to the root in plants. To no one were the analogies between man and plant more attractive than to Herder, who was never

weary of spinning out and repeating this simile with every possible variation. It was a fault in him that he used this *planta inversa* as a characteristic of man, which he could interpret as a symbol of universal history. Herder's intellect was made for analogies. Every analogy was a theme, on which he could compose a *fantasia*, and indeed what he called his "Ideas" were mere analogies after all. From such points of view he derived his theories of the history of mankind. His combinations were generally suggestive, seldom accurate, and he might serve as an eminent example to illustrate the genius of analogy, with all its aberrations and its blunders. To this point especially did Kant direct his shafts in his critique of Herder's "Ideas," showing how frequently his analogies were uncertain, and the conclusions drawn from them false.

Bacon treats the analogies which he introduces into natural science with great tact; he does not *play* with them, but contents himself with noting the point of resemblance, and explaining it in a few words; after which he hastens on to new comparisons. From definite instances he infers universal analogies, which ultimately comprehend all nature, and these axioms he confirms anew by fresh definite instances,—by special comparisons between minerals and plants, plants and

animals, &c. Beginning with individual instances, he at last directs his glance to the relations of the whole world, and already anticipating the speculative geography of our own time, observes the analogies in the formation of the quarters of the globe. Thus he is struck by the resemblance between Africa and South America, both of which extend over the Southern Hemisphere, while there is a further analogy between the isthmus and promontory of both. "This is no mere accident" (*non temere accidit*), he significantly adds. He embraces both the *Old* and the *New World* in one comparative view, and remarks that these two huge masses of land become broad as they approach the north, narrow and pointed as they approach the south. There is something great and striking in the very fact of these remarks; in the fact that here also Bacon has discovered an analogy, which, without difficulty, can be followed into its details. In a few short hints, given in a cursory manner, he has recognised a most interesting point in geographical science, namely, the importance to be attached to the variations of the line of coast. By way of conclusion, Bacon essays his comparative glance on arts and sciences, and here also seeks for analogies. He takes for his examples rhetoric and music, mathematics and logic; find-

ing in the former similar tropes, in the latter similar forms of reasoning. To the rhetorical figure called *præter expectationem*, the musical *declinatio cadentiæ* perfectly corresponds. In mathematics there is the axiom that "things equal to the same are equal to one another." To this there is a complete analogy in the logical form of syllogism, which connects two terms by means of a third.

We do not pronounce a judgment on the scientific value and scope of all these analogies which Bacon uses as examples. To us they are important for the assistance they afford us, both by their subject-matter, and by the manner of their introduction, in arriving at a right knowledge of Bacon himself. They show a mind of the most comprehensive vision, with a corresponding acuteness in observing combinations. Bacon does not use an analogy as an object, but as an instrument in aid of his method. Of this instrument he makes lavish use, according to the dictates of his own inclination and abundant power; he extends his grasp beyond the limits of his method, and, in spite of all his caution, there is imminent danger that he will not only abandon this method, but act in direct opposition to it; for, in truth, every analogy is an *anticipatio mentis*. The very design of Bacon's analogies shows that

he sought more than can be afforded by experience. He sought by this road what he could not discover by that of induction alone, namely, the unity of nature as manifested in the affinity of all things, or the harmony of the universe. Here we find Bacon in alliance with Leibnitz and his followers, as we found him before with Spinoza and Descartes. It will be but fair if we take that comparative view of Bacon himself which he took of all nature, pointing out his own mental affinities, his own analogies, and aiding *our* observation by *his* "parallel instances," which do nothing to diminish his originality, but throw a light on his comprehensive mind. What was fundamental tendency in Leibnitz was supplementary in Bacon, so that the axiom of the former was the auxiliary expedient of the latter. Leibnitz as much needed induction as Bacon needed analogy.

The mind of Bacon extends further than his method; but in this very circumstance lies his epoch-making power, and it imposes upon us the necessity of comprehending his antagonism to antiquity and the philosophy derived from it. Thus we shall place ourselves in Bacon's own mental sphere and picture to ourselves that antagonism, just as Bacon himself conceived it.

CHAP. VI.

THE PHILOSOPHY OF BACON IN ITS RELATION TO THE
PHILOSOPHY PRECEDING IT.

THE result of the Baconian philosophy, and the logical order of its ideas, may be thus stated in its principal features : —

1. Science should serve man by being useful to him. Its use consists in *inventions*; the object of which is the dominion of the human race.

2. Science can only become inventive through an exact knowledge of things, and this is only to be obtained by an interpretation of nature.

3. A correct interpretation of nature is only possible through pure and methodical experience. Experience is pure when it does not judge according to “idols” and human analogies, when it does not anthropomorphise things, when it is mere experimentalising perception. Experience is methodical as *true induction*. Induction is true when, by an accurate and critical comparison, it infers laws from a number of particular instances. Comparison is critical when it opposes

negative to positive instances. Moreover, the process of inductive reasoning is accelerated by the investigation of prerogative instances. Experience, thus disciplined, avoids from first to last all uncertain and premature hypotheses.

Thus Bacon sets up his principle and himself in opposition to the past. He sees that his own principles comprise all the conditions requisite for a thorough renovation of science, such as no one before him had the courage or the vigour to effect; he feels that he is himself the bearer of the renovating spirit,—the scientific reformer. “No one,” he says, “has as yet been found endowed with sufficient firmness and vigour to resolve upon and undertake the thorough abolition of common theories and notions, and the fresh application of the intellect, thus cleared and rendered impartial, to the study of particulars. Hence human reason, such as we have it now, is a mere farrago and crude mass made up of much credulity, much accident, and, withal, of those puerile notions which are imbibed early in life. But if some one of mature age, sound senses, and a disabused mind, should apply himself anew to experience and the study of particulars, we might have better hope of him.”* “Some hope might,

* “Nemo adhuc tanta mentis constantia et rigore inventus est, ut dicaverit et sibi imposuerit theorias et notiones communes

we think, be afforded by my own example; and we do not say this for the sake of boasting, but because it may be useful. If any feel a want of confidence, let them look at me, — a man who, among his contemporaries, has been most engaged in public affairs, who is of somewhat infirm health (which of itself occasions great loss of time), and who, in this matter, is assuredly the first explorer, neither following in the steps of another, nor communicating his own thoughts to a single individual; but who, nevertheless, having once firmly entered upon the right way, and submitted his mind to *things*, has (I think) made some advance.”*

If we now compare Bacon's philosophy with

penitus abolere, et intellectum abrasum et æquum ad particularia de integro applicare. Itaque ratio illa humana quam habemus, ex multa fide et multo etiam casu, nec non ex puerilibus quas primo hausimus notionibus, farrago quædam est et congeries. Quod si quis ætate matura et sensibus integris et mente repurgata se ad experientiam et ad particularia de integro applicet, de eo melius sperandum est.” — *Nov. Org.* I. 97.

* “Etiam nonnihil hominibus spei fieri posse putamus ab exemplo nostro proprio; neque jactantiæ causa hoc dicimus sed quod utile dictu sit. Si qui diffidant, me videant, hominem inter homines ætatis meæ civilibus negotiis occupatissimum, nec firma admodum valetudine (quod magnum habet temporis dispendium), atque in hac re plane protopirum, et vestigia nullius secutum, neque hæc ipsa cum ullo mortalium communicantem, et tamen veram viam constanter ingressum et ingenium rebus submittentem, hæc ipsa aliquatenus (ut existimamus) provexisse.” — *Nov. Org.* I. 113.

that which preceded it, we find, in all those points that bear upon the reformation of science, a decided antagonism. Bacon gives science another purpose, another foundation, another tendency.

I. THE PRACTICAL END.

DOGMATISM AND SCEPTICISM.

Bacon immediately directs science to the use of mankind, and to invention as the agent for promoting it; he would make science practical and generally useful, and from this point of view opposes the scientific character previously recognised, which was theoretic and only accessible to the few. From an affair of the schools, which it had hitherto been, Bacon would make of science an affair of life, not merely because it suited his inclination so to do, but as a necessary consequence of his principles. Bacon's plan of renovation stands in an opposition to the antique, similar to that of the Kantian philosophy. Kant would make philosophy critical; Bacon would make it practical. Preceding systems appear uncritical to Kant, unpractical to Bacon. In the summary judgment which both, from opposite points of view, pronounce upon their predecessors, both are alike incapable of doing

justice in any particular to the philosophical culture of the past. They both agree that all preceding philosophy has been mere fruitless speculation, that the systems of the past fall into the opposite extremes of dogmatism and scepticism, and thus reciprocally annul each other's results: To Kant the representatives of dogmatic and sceptical philosophy were Wolf and Hume; to Bacon they were the dogmatic Aristotelians and the academical sceptics, of whom he said that the former came to false and rash conclusions, the latter to none at all.* To embrace both these epochs of modern philosophy in one common expression, we may assert that Bacon and Kant, convinced of the fruitlessness of all preceding speculation, both desired to render philosophy fruitful, and therefore practical. Bacon directed it to a practical knowledge of nature, Kant to a practical knowledge of self. The ripest fruit of the Baconian philosophy is invention, so far as it conduces to the dominion of man; that of the Kantian is morality as based upon human freedom and autonomy.

Bacon is never weary of reproaching the past with unfruitfulness, as a necessary consequence of theoretical philosophy. People fancy that they know a great deal, through this traditional system;

* Compare *Nov. Org.* 1. 67.

nevertheless they make no advance, but remain stationary and inactive. The belief in their wealth is the cause of their poverty.* “That philosophy, which we have chiefly derived from the Greeks, appears to be, as it were, the childhood of science, being fertile in controversy, barren of effect. Moreover, if sciences of this sort had not been a dead letter, it seems highly improbable that they would have remained, as they have, almost immovable on their ancient footing without acquiring growth worthy of the human race; and this to such an extent that frequently not only does an assertion remain an assertion, but even a question remains a question, and instead of being solved by discussion is fixed and maintained, so that the whole tradition and succession of instruction exhibits as on a stage the characters of master and scholar, but not that of the inventor, or of him who has added anything excellent to inventions. In mechanical arts we find that the contrary is the case. These, as if they partook of some vivifying air, are daily increased and brought to perfection. On the contrary, philosophy and the intellectual sciences, like statues, are adored and celebrated like statues, but are not moved from the spot whereon they stand.”†

* *Opinio copiae* = *Causa inopiae*. — *Cogit. Visa*.

† “Et de utilitate aperte dicendum est, sapientiam istam

II. THE PHYSICAL FOUNDATION.

Bacon, having decided that invention is the end of science, takes physics as its foundation. Thus he is in direct opposition to the philosophies of every preceding age; to scholasticism, which, at bottom, was nothing but theology, to the Roman philosophy, which was chiefly occupied with ethics, and to the Græco-classic, which based physics upon metaphysics. Bacon first shows that philosophy has hitherto been unfruitful; then he investigates the causes of this scientific poverty. The first of these causes he finds in the fact that of the whole period recorded in the history of mankind an extremely small portion

quam a Græcis potissimum hausimus pueritiam quandam scientiæ videri. . . . Controversiarum enim ferax, operum effœta est. . . . Præterea, si hujusmodi scientiæ plane res mortuæ non essent, id minime videtur eventurum fuisse quod per multa jam sæcula usu venit, ut illæ suis immotæ fere hæreant vestigiis, nec incrementa genere humano digna sumant: eo usque, ut sæpenumero non solum assertio maneat assertio sed etiam quæstio maneat quæstio, et per disputationes non solvatur sed figatur et alatur, omnisque traditio et successio disciplinarum repræsentet et exhibeat personas magistri et auditoris, non inventoris et ejus qui inventis aliquid eximium adjiciat. In artibus autem mechanicis contrarium evenire videmus; quæ, ac si auræ cujusdam vitalis forent participes, quotidie crescunt et perficiuntur. . . . Philosophia contra et scientiæ intellectuales, statuarum more, adorantur et celebrantur, sed non promoventur." — *Præf. Inst. Magna.*

has been devoted to science, and the second in the fact that the smallest portion even of scientific labour has been bestowed upon the natural sciences. "Of the five and twenty centuries, which nearly comprise all the memory and learning of man, scarcely six can be selected and set apart as fertile in science and favourable to its advancement. For deserts and wildernesses are no less in times than in countries, and we can rightly enumerate no more than three revolutions and epochs of learning, namely, first the Greek; secondly, the Roman; and lastly, our own (that is to say, the learning of the Western nations of Europe); and to each of these scarcely two centuries can be justly assigned. Even in those ages, in which men's wit and literature flourished greatly, or even moderately, the smallest part of human labour was bestowed upon Natural Philosophy, which ought nevertheless to be regarded as the great mother of all the sciences. For all the arts and sciences torn from this root may perhaps be polished and fitted for use, but they will scarcely grow. It is well known that after the Christian religion had been adopted and had reached maturity, by far the greater number of excellent wits devoted themselves to theology; that to this science the highest rewards were offered, and all means of assistance were abun-

dantly supplied; and that thus the study of theology almost entirely occupied that third period which has been given as that of the Western Europeans; the rather because about the same time when literature began to flourish, religious controversies also began to bud forth. In the preceding age, during that second or Roman period, the meditation and labour of philosophers were chiefly occupied and consumed by moral philosophy, which held the place of theology among the heathens. Moreover, in those times the greatest minds applied themselves as much as possible to civil affairs, on account of the magnitude of the Roman Empire, which required the labour of many men. But that age, during which Natural Philosophy appeared to flourish chiefly among the Greeks, was exceedingly short, since, in the more ancient times, the seven wise men, as they were called, all (with the exception of Thales) devoted themselves to Moral Philosophy and Politics; and in the times succeeding, after Socrates had brought down philosophy from heaven to earth, moral philosophy became still more prevalent, and diverted the minds of men from natural science. In the meanwhile let no one expect great progress in the sciences (especially their operative part) unless Natural Philosophy be applied to particular sciences, and particular

sciences again referred to Natural Philosophy. Hence it arises that astronomy, optics, music, many mechanical arts, medicine itself (and what seems more wonderful) moral and political philosophy, have no depth, but only glide over the surface and variety of things; because these sciences, having been once partitioned out and established, are no longer nourished by Natural Philosophy. Thus, there is little cause for wonder that the sciences do not grow, when they are separated from their roots."*

* "Ex viginti quinque annorum centuriis, in quibus memoria et doctrina hominum fere versatur, vix sex centuriæ seponi et excerpti possunt, quæ scientiarum feraces earumve proventui utiles fuerunt. Sunt enim non minus temporum quam regionum eremi et vastitates. Tres enim tantum doctrinarum revolutiones et periodi recte numerari possunt: una, apud Græcos; altera, apud Romanos; ultima, apud nos, occidentales scilicet Europæ nationes: quibus singulis vix duæ centuriæ annorum merito attribui possunt. . . . Per illas ipsas ætates quibus hominum ingenia et literæ maxime vel etiam mediocriter floruerint, Naturalis Philosophia minimam partem humanæ operæ sortita sit. Atque hæc ipsa nihilominus pro magna scientiarum matre haberi debet. Omnes enim artes et scientiæ ab hac stirpe revulsæ, poliuntur fortasse et in usum effinguntur, sed nil admodum crescunt. At manifestum est, postquam Christiana fides recepta fuisset et adolevisset, longe maximam ingeniorum præstantissimorum partem ad Theologiam se contulisse; atque huic rei et amplissima præmia proposita, et omnis generis adjumenta copiosissime subministrata fuisse: atque hoc Theologiæ studium præcipue occupasse tertiam illam partem sive periodum temporis apud nos Europæos occidentales; eo magis, quod sub idem fere tempus et literæ florere et controversiæ circa religionem pul-

III. THE ANTIFORMAL TENDENCY.

That he may arrive at a proper explanation of nature, Bacon rejects all idols, including final causes, generic notions and forms, as human analogies that do not belong to the things themselves. To final he opposes efficient causes; to generic notions, individual things; to abstract

lulare cœperint. At ævo superiori, durante periodo illa secunda apud Romanos, potissimæ philosophorum meditationes et industriæ in Morali Philosophia (quæ Ethnicis vice Theologiæ erat) occupatæ et consumptæ fuerunt: etiam summa ingenia illis temporibus ut plurimum ad res civiles se applicuerunt, propter magnitudinem imperii Romani, quod plurimorum hominum opera indigebat. At illa ætas, qua Naturalis Philosophia apud Græcos maxime florere visa est, particula fuit temporis minime diuturna; cum et antiquioribus temporibus septem illi qui sapientes nominabantur, omnes (præter Thaletem) ad Moralem Philosophiam et civilia se applicuerint; et posterioribus temporibus postquam Socrates philosophiam de coelo in terras deduxisset, adhuc magis invaluerit Moralis Philosophia, et ingenia hominum a Naturali averterit. . . . Interim nemo expectet magnum progressum in scientiis (præsertim in parte earum operativa), nisi Philosophia Naturalis ad scientias particulares producta fuerit, et scientiæ particulares rursus ad Naturalem Philosophiam reductæ. Hinc enim fit, ut astronomia, optica, musica, plurimæ artes mechanicæ, atque ipsa medicina, atque (quod quis magis miretur) philosophia moralis et civilis, et scientiæ logicæ, nil fere habeant altitudinis in profundo; sed per superficiem et varietatem rerum tantum labantur: quia postquam particulares istæ scientiæ dispertitæ et constitutæ fuerint, a Philosophia Naturali non amplius alantur. . . . Itaque minime mirum est si scientiæ non crescant, cum a radicibus suis sint separatæ." — *Nov. Org.* I. 78, 79, 80.

forms, material qualities; and thus he denies everything that would render an interpretation of natural, teleological, idealistic, or, in a word, abstract. We may say, to combine these several oppositions in one single expression, that he employed his whole weight to counterbalance that formal philosophy that had, down to his own time, so vastly preponderated, whether we consider the extent or the duration of its reign. Under this formal philosophy, which he regards as his antagonist, Bacon comprises Aristotelian Scholasticism, Platonic Aristotelism, Pythagorean Platonism. In all these systems, that doctrine of final causes, that is regarded by Bacon as an "Idolon Tribus," predominates as the leading idea. The creations of formal philosophy are so many historical developments of this one fallacy. They are the idols that in the field of philosophy take possession of the human mind; that is to say, they are, in the eyes of Bacon, "Idola Theatri."*

Such, accurately expressed, are the points of opposition that give an historical character to the Baconian philosophy. To theoretic it opposes practical philosophy as an instrument of useful cultivation; to metaphysics and theology, which have hitherto constituted the basis of science, it

* The consideration of the "Idola Theatri" occupies Aphorisms 61—68 of *Nov. Org.* lib. I.

opposes physics; to formal it opposes material philosophy; to common experience it opposes scientific experience.

I. BACON'S ANTAGONISM TO ARISTOTLE.

All these points of opposition were, as Bacon thought, concentrated in Aristotle, who, to his time, had held a dictatorship in the region of philosophy. Aristotle had canonised theory as the highest aspiration of the mind; rendering us similar to the gods. He had systematically elaborated metaphysics, and upon this foundation had based his interpretation of nature. He was the real scientific representative of formal philosophy, and the creator of its logic; he regarded physics from the teleological point of view, after establishing that point of view metaphysically; he brought the whole formal philosophy of the Greeks into a system, by which the middle ages were governed. Lastly, in Bacon's eyes, that unmethodical and uncritical kind of experience that had hitherto prevailed was to be laid to the charge of Aristotle, for he brought induction into philosophy without sifting it critically, or arranging it in logical order. By the side of a fruitless logic Aristotle had upheld an illogical experience. What great end, then, could be attained by the philosophy that followed him, provided as it

was with such inefficient weapons? Thus, in Bacon's eyes, all the "Idola Theatri" that occupy the field of science are combined under the name of Aristotle. To this point, therefore, he directs all the attacks which he intends for antiquity in general. The name of Aristotle is, as it were, the extremity of a rod that must conduct all the lightnings darted by Bacon against the earlier philosophy. That Bacon may not appear unjust to Aristotle, we must consider the name of the latter, when used by the former, as a *nomen appellativum* rather than a *nomen proprium*. How far he apprehended the veritable Aristotle we shall not pause to inquire, for our inquiry here is not what Aristotle really was, but what he appeared in the eyes of Bacon, who attacked in him the theorist, the metaphysician, the formalist, and the empirist — making of himself an anti-Aristotle incarnate.

To the Aristotelian "Organon," Bacon, in his own "Organum," offers a double opposition. He combats the Aristotelian logic with experience, and the Aristotelian experience (which he considers the same as the common) with methodical experience. To syllogism he opposes induction; to Aristotelian induction true induction. His tactics in both cases are the same. He would prove that both syllogism and Aristotelian expe-

rience are, with respect to physics, equally unpractical and unfruitful.

SYLLOGISM

is unfruitful, inasmuch as it cannot discover anything new, cannot find anything unknown, but can only exhibit, arranged in a consequent order, notions that are already familiar. It is a mere form of thought, that presupposes a given material to fill it up. But the aim of genuine science is the discovery of a material, not the mere arrangement of that which has already been given or handed down. From the known, science would infer the unknown. Thus syllogism, which only arranges what is known, is an useless instrument in the hand of science; that is, of no assistance to her in her investigations, and does not advance her interests in the slightest degree. From syllogistic logic no science can be derived, since, as Bacon observes, it is of no service in the discovery of scientific truth.* Of what does syllogism consist? Of judgments or premises. And of what do these consist? Of words. But words are mere symbols of notions that are in themselves obscure and

* "Sicut scientiæ quæ nunc habentur inutiles sunt ad inventionem operum; ita et logica quæ nunc habetur inutilis est ad inventionem scientiarum."—*Nov. Org.* I. 11.

abstract representations of things, made and taken upon trust without due investigation, and circulated in the same fashion. Thus, if we reduce syllogism to its ultimate elements, we find that it rests upon obscure and uncertain notions.* These are turned into current coin by Formal logic, and as such are circulated. Thus, this kind of logic, far from conducing to the investigation of truth, rather serves to establish error; so that it is not merely useless, but even injurious.† Syllogistic science lives on words alone; encourages not action, but talking; rendering men not inventive, but loquacious, and mere disputation leads to nothing. The art of words does not promote the “*regnum hominis*,” but merely the “*munus professorium*.”

Experience proceeds differently from this kind of logic, proving not by words, but by deeds; demonstrating *ad oculos*, experimentalising instead of talking. With the aid of an instrument, it

* “Syllogismus ex propositionibus constat, propositiones ex verbis, verba notionum tesseræ sunt. Itaque si notiones ipsæ (id quod basis rei est) confusæ sint et temere a rebus abstractæ, nihil in iis quæ superstruuntur est firmitudinis.”—*Nov. Org.* I. 14.

† “Logica quæ in usu est ad errores (qui in notionibus vulgaribus fundantur) stabiliendos et figendos valet, potius quam ad inquisitionem veritatis; ut magis damnosa sit quam utilis.”—*Nov. Org.* I. 12.

rectifies our sensuous perception, and fits it for the observation of things. "We must fly to art," says Bacon, "and must look to demonstration that is governed by art. As for syllogism, which is regarded by Aristotle as an oracle, sentence may be passed on it in a few words. It is, doubtless, useful to the understanding, as a sort of helping hand, in those sciences that are founded on human opinions, as the moral and political, but it is unequal and incompetent to the subtlety and obscurity of natural things. Thus, induction remains our last and only aid in the acquisition of real knowledge. Nor do we, without cause, rest our hopes upon it, since it is able to collect laborious works and the faithful suffrages of things, and present them to the intellect."* Therefore away with syllogism; let us have

* "(Cogitavit) sequi igitur ut ad artem confugiendum, et de demonstratione quæ per artem regitur, videndum sit. Atque de syllogismo qui Aristoteli oraculi loco est, paucis sententiam claudendam. Rem esse nimirum in doctrinis quæ in opinionibus hominum positæ sunt, veluti moralibus et politicis, utilem et intellectui manum quandam auxiliarem; rerum vero naturalium subtilitati et obscuritati imparem et incompetentem. Restare inductionem, tanquam ultimum et unicum rebus subsidium et perfugium; neque immerito in ea spes sitas esse, ut quæ opera laboriosa et fida rerum suffragia colligere, et ad intellectum perferre possit."—*Cogit. et Visa.*

EXPERIENCE.

Not, however, Aristotelian experience, for this is just as sterile as syllogism, and no less misses the ultimate object of all scientific research. In a natural state of things, logic ought to discover truths, and experience invent works; the former procuring for us new knowledge, the latter aiding us to new inventions. But the Aristotelian logic contributes nothing "*ad inventionem scientiarum*;" the Aristotelian experience contributes nothing "*ad inventionem operum*." Both are incapable of invention, and therefore both are useless. The Aristotelian experience is sterile from a double cause; that is to say, it is either a mere description involving an expanse of matter without form (just as the syllogism was an empty form without matter), or "a simple and childish kind of induction, that proceeds by enumeration alone, and therefore arrives not at necessary, but at uncertain conclusions."* Hence it does not lead to any knowledge of laws, to any interpretation of nature, to any invention, but remains dry and sterile. Or, on the other hand, this Aristo-

* "Formam ejusdem (inductionis) meditati sunt admodum simplicem et plane puerilem quæ per enumerationem tantum procedat, atque propterea precario non necessario concludat."—*Cog. et Visa.*

telian experience at once infers the most general laws from the consideration of a few particular cases, without regarding the negative instances, — without extending its path by a careful comparison of various cases, or shortening it by the discovery of prerogative instances. It does not discover, but merely abstracts laws, and is thus unmethodical and uncritical, — not investigating, but anticipating nature. From single facts to general laws it proceeds as if by flight, not step by step. Its fault is an impatience of delay, which, not allowing any pause to the work of experience, forces it to fly upwards, instead of climbing; so that it misses the goal that it is in such a hurry to reach. It grasps immediately at the highest laws, — determines the primary before it has ascertained the intermediate causes, — hoping by syllogistic art to supply the links wanting in the chain of existence.* An experience of this kind can lead to no experiment properly called, — to no invention; it is therefore as sterile as the syllogism.

* The whole of the above passage is an expansion of the following : — “ *Moræ impatientes et compendia viarum undique illustrantes, et quædam in certe ponere, circa quæ, tanquam circa polos, disputationes verterentur, properantes, eam (inductionem) tantum ad generalia scientiarum principia adhibuerunt, media per syllogismorum derivationes expedire temere sperantes.* ” — *Cog. et Visa.* — J. O.

In the place of this kind of experience, Bacon puts the *inventive*, which proceeds by another path. "There are, and can be," he says, "only two ways for the investigation and discovery of truth. One flies from the senses and particulars to the most general axioms, and from these principles, and their infallible truth, determines and discovers intermediate axioms. And this is the way now in use. The other constructs axioms from the senses and particulars, by ascending continually and gradually, so as to reach the most general axioms last of all. This is the true way, but is yet untried."* The right way from the particular phenomena to the highest laws of nature is by a series of steps, and this series constitutes the characteristic difference between the Baconian experience and that which had previously prevailed. "The human understanding must not jump and fly from particulars to remote and most general axioms (such as the so-called principles of acts and things), and then, by the infal-

* "Duæ viæ sunt, atque esse possunt, ad inquirendam et inveniendam veritatem. Altera a sensu et particularibus advolat ad axiomata maxime generalia, atque ex iis principiis eorumque immota veritate judicat et invenit axiomata media; atque hæc via in usu est: altera a sensu et particularibus excitat axiomata, ascendendo continenter et gradatim, ut ultimo loco perveniatur ad maxime generalia; quæ via vera est, sed intentata." — *Nov. Org.* I. 19.

libile truth of these, test and make out the intermediate axioms. This, however, has hitherto been done from the natural bent of the understanding, which has, moreover, been trained and accustomed to this course by the syllogistic form of demonstration. But we can then only hope well for science, when the ascent shall be made by a true scale, and successive steps, without gap or interruption, first from particulars to minor axioms, then to the intermediate (one above the other), and finally to the most general. For the lowest axioms do not much differ from bare experience; but those which are now deemed the highest and most general are notional and abstract, with nothing solid about them. But the intermediate are those true, solid, and living axioms, upon which depend the affairs and fortunes of mankind. Hence we must not add wings, but rather lead and weights to the human understanding, in order to prevent all jumping and flying.”*

* “Neque tamen permittendum est, ut intellectus a particularibus ad axiomata remota et quasi generalissima (qualia sunt principia, quæ vocant, artium et rerum) saliat et volet; et ad eorum immotam veritatem axiomata media probet et expediat: quod adhuc factum est, prono ad hoc impetu naturali intellectus, atque etiam ad hoc ipsum, per demonstrationes quæ fiunt per syllogismum, jampridem edocto et assuefacto. Sed de scientiis tum demum bene sperandum est, quando per scalam veram, et per gradus continuos et non intermissos aut hiulcos, a particularibus ascendetur ad axiomata minora, et deinde ad media,

SYLLOGISM AND EXPERIENCE.

These two instruments of the Aristotelian philosophy stand, as Bacon remarks, in a reciprocal relation; the one supporting, and acting as a supplement to the other. Syllogistic art requires the lower kind of experience, to give a material upon which it may imprint its logical form. Experience requires syllogism, to find intermediate links between phenomena and universal laws. Without experience, syllogism would be devoid of life and motion; without syllogistic art, experience would be aphoristic, and unable even to assume the appearance of systematic order.

The mind that is desirous of invention has nothing to expect from either. Its mode of knowledge is *logical experience*, or *inventive logic*. Logical experience is distinguished, *as experience*, from formal logic, which has nothing to do with experience; and, *as logic*, from the ordinary expe-

alia aliis superiora, et postremo demum ad generalissima. Etenim axiomata infima non multum ab experientia nuda discrepant. Suprema vero illa et generalissima (quæ habentur) notionalia sunt et abstracta, et nil habent solidi. At media sũnt axiomata illa vera et solida et viva, in quibus humanæ res et fortunæ sitæ sunt. . . . Itaque hominum intellectui non plumæ addendæ, sed plumbum potius et pondera; ut cohibeant omnem saltum et volatum."—*Nov. Org.* I. 104.

rience, in which there is nothing logical. "We must apply to ourselves," says Bacon, "the joke of him who said that wine-drinkers and water-drinkers cannot think alike; especially as it hits the point so well. Now other men, both ancient and modern, have drunk in science, a crude liquor, like water, which has either flowed spontaneously out of the understanding, or has been drawn up by dialectics, as by a wheel from a well. But we drink and pledge others with a liquor made from an infinite number of grapes, and those well ripened, plucked, and collected in picked clusters, then crushed in the winepress, and at last purified and clarified in a vessel. Therefore it is not wonderful that we do not agree with others." *

* "Itaque dicendum de nobis ipsis quod ille per jocum dixit, præsertim cum tam bene rem secet: fieri non potest ut idem sentiant, qui aquam et qui vinum bibant. At cæteri homines, tam veteres quam novi, liquorem biberunt crudum in scientiis, tanquam aquam vel sponte ex intellectu manantem, vel per dialecticam, tanquam per rotas ex puteo haustam. At nos liquorem bibimus et propinamus ex infinitis confectam uvis, iisque maturis et tempestivis, et per racemos quosdam collectis ac decerptis, et subinde in torculari pressis, ac postremo in vase repurgatis et clarificatis. Itaque nil mirum si nobis cum aliis non conveniat."—*Nov. Org.* I. 123. By "aquam sponte ex intellectu manantem," Bacon manifestly means syllogism; by "aquam per rotas ex puteo, haustam," that kind of experience that from a few facts leaps at once to the most general axioms. In the parallel passage of "*Cogitata et Visa*," he expresses the same thought by the words, "*Industria quadam haustum (liquorem).*" —*Author's Note.*

2. BACON'S OPPOSITION AND AFFINITY TO PLATO. — HIS
OPINION OF PLATO AND ARISTOTLE.

Within the limits of formal philosophy, to which as a whole he is diametrically opposed, Bacon, nevertheless, makes a remarkable distinction between Aristotle and Plato. Of the two, Plato appears to him as belonging to the higher order of mind, as the greater genius. The systems of these philosophical chiefs of classical antiquity are, indeed, both equally removed from a true semblance of nature; the minds of both are prepossessed by "idols," but those of Plato are as poetical as those of Aristotle are sophistical.* Little as Bacon participates in the errors of Plato, they appear to him more amiable and natural than those of the other. The imagination, when it errs, is more readily pardoned than the understanding. Bacon's philosophical views were far removed from anything like poetry, but he had a lively imagination, and a ready susceptibility for the charms of poetry; and this side of his character was attracted by the poetical Plato. Indeed, this element of poetry in Bacon, which is displayed not only in his preference for Plato, but not unfrequently influences his style, and guides

* "Platonem, tam prope ad poetæ, quam illum (Aristotelem), ad sophistæ partes accedere."—*Cogitata et Visa*.

him in the choice of his examples, proves anew the truth of the felicitous remark once made by Humboldt on the subject of Columbus, that a poetical imagination expresses itself in every great specimen of human character.*

Bacon draws a distinction between Plato and Aristotle, precisely the same as that which, by many of the present day, is drawn between Schelling and Hegel. In opposition to both of them, he puts correct investigation, which, he asserts, Plato has spoiled by imagination, Aristotle by dialectics. The great example of sophistical philosophy, according to Bacon, is Aristotle, who, by his dialectics, spoiled natural science, inasmuch as he produced a world from categories. Thus, Bacon reproaches Aristotle with a resolution of all reality into categories; Plato, with a conversion of reality into imaginary forms; the one setting logical abstraction, the other poetical images, and both alike setting "idols" in the place of *things*. Plato is mystical and poetical; Aristotle, dialectical and sophistical. Thus, in his day, did Bacon judge the classical philosophers of antiquity; and, at the present time, the same judgment is passed by almost everybody upon Schelling and Hegel. We say this without partiality; our only interest being in the fact that

* "Ansichten der Natur," Vol. I. p. 256.

we maintain, namely, that the judgment passed on Schelling and Hegel, at the present day, is not only similar, but literally the same as that formerly pronounced by Bacon on Plato and Aristotle. It is not without reason that many have called attention to the affinity between Hegel and Aristotle, Schelling and Plato. We may even state a ratio:—*as the two German idealists are to our own age, so are the two Greeks to the age of Bacon.* We are not speaking here of a distance in point of time, but of scientific magnitude. If nearly everybody now judges of the two German philosophers, just as Bacon judged of kindred spirits among the ancient Greeks, we may regard this identity as an important sign, showing how near the present age has brought itself to the Baconian point of view. It bears witness to an affinity between Bacon's mode of thought, and that now prevailing. We think too highly of Bacon to construe this sign unfavourably for the present age. Still, there is *one* thing it does not prove; namely, that the tendency of our own times to pronounce a verdict against the last systems of philosophy is at all new or original. *One* thing it does not proclaim (although this is presumed by many, who are ignorant of history), namely, a new epoch! Much more is this turn of thought to be regarded as a mere emanation of that broad, intellectual flood that

originated with Bacon. On this account, do we examine so carefully, and with such deep interest, the great source itself; on this account do we strive to exhibit to the present generation, as in a clear mirror, the image of Bacon, which it has imitated for the most part unconsciously, but, on the whole, certainly not without cause.

THE PLATONIC IDEALISM.

Bacon rejects alike the Platonic ideas and the Aristotelian categories; both are to him abstract, sterile forms, that explain nothing in nature. But the Platonic philosophy regards its Ideas, which, in truth, are merely idols, as the divine originals of the things themselves. It deifies these idols; and thus, to the realistic thinker, appears an apotheosis of error, bribing the understanding through the imagination. Such a thinker must naturally regard it as a science of logical corruption, as a fantastic philosophy. "For the human understanding," says Bacon, "is no less exposed to the impressions of fancy, than to those of vulgar notions. For the disputatious and sophistical kind of philosophy ensnares the understanding; while that other fanciful, bombastic, and, as it were, poetical sort, rather flatters it. There is in man a certain ambition of the intellect, no less than of the will, especially among lofty and

elevated minds. Of this better kind we have, among the Greeks, a most conspicuous example in Pythagoras, though combined with a coarser and more burdensome superstition; but it appears more subtle and dangerous in Plato and his school. This kind of evil is found also in branches of other systems, where it introduces abstract forms, final and primary causes, frequently omitting the intermediate, and the like. Against it, the greatest caution must be used; for the apotheosis of error is the greatest of evils, and the worship of folly may be regarded as the pestilence of the intellect. But in this vanity some of the moderns, with consummate recklessness, have indulged to such an extent, that they have endeavoured to found a natural philosophy on the first book of Genesis*, the book of Job, and other sacred writings; thus seeking the dead among the living. And this folly is the more to be checked and restrained, because not only fantastical philosophy, but heretical religion, results from such an absurd mixture of the divine and human. It is, therefore, most wholesome soberly to render unto faith only the things that are faith's." *

* "Humanus enim intellectus non minus impressionibus phantasie est obnoxius, quam impressionibus vulgarium notionum. Pugnax enim genus philosophiæ et Sophisticum illaqueat intellectum: at illud alterum phantasticum et tumidum, et quasi

Aiming at the purity of science, Bacon would, above all, preserve its foundation, physics, from every heterogeneous admixture. “Natural philosophy has not yet been found in a pure state, but corrupt and infected:—in the school of Aristotle, by logic; in the school of Plato, by natural theology; in the second school of Plato (that of Proclus and others), by mathematics, which ought to limit natural philosophy, not to generate or create it. But from a pure and unmixed natural philosophy better results are to be hoped.” *

Poeticum, magis blanditur intellectui. Inest enim homini quædam intellectus ambitio, non minor quam voluntatis; præsertim in ingeniis altis et elevatis. Hujus autem generis exemplum inter Græcos illucescit, præcipue in Pythagora, sed cum superstitione magis crassa et onerosa conjunctum; at periculosius et subtilius in Platone, atque ejus schola. Invenitur etiam hoc genus mali in partibus philosophiarum reliquarum, introducendo formas abstractas, et causas finales, et causas primas; omittendo sæpissime medias, et hujusmodi. Huic autem rei summa adhibenda est cautio. Pessima enim res est errorum Apotheosis, et pro peste intellectus habenda est, si vanis accedat veneratio. Huic autem vanitati nonnulli ex modernis summa levitate ita indulserunt, ut in primo capitulo Genescos et in libro Job et aliis scripturis sacris, philosophiam naturalem fundare conati sint; inter viva quærentes mortua. Tantoque magis hæc vanitas inhibenda venit et coercenda, quia ex divinorum et humanorum malesana admistione non solum educitur philosophia phantastica, sed etiam religio hæretica. Itaque salutare admodum est, si mente sobria fidei tantum dentur quæ fidei sunt.”—*Nov. Org.* I. 65.

* “Naturalis Philosophia adhuc sincera non invenitur, sed infecta et corrupta: in Aristotelis schola per logicam, in Platonis schola per theologiam naturalem; in secunda schola Platonis,

Still, notwithstanding this diametrical opposition of principles and tendencies, there is still a philosophical point of contact to be found between the greatest idealist of antiquity and the greatest realist of modern times.

THE PLATONIC METHOD

is akin or homogeneous to the Baconian. In much the same manner does Plato find his ideas; Bacon, the laws of things. The Socratico-Platonic method derives the mental conception from immediate representations; Bacon, from natural phenomena, derives a law. In both cases the course of reasoning is inductive, beginning with particulars, and ascending to the universal. In both cases the induction is of a kind that proceeds slowly and gradually (*per gradus continuos*) to the universal:—with Plato, to Ideas; with Bacon, to laws: with Plato, to the original; with Bacon, to the copy of nature: with Plato, to the final; with Bacon, to the efficient causes of things. And what is the chief point of all, the course of induction is in both cases pursued

Procli et aliorum, per mathematicam; quæ philosophiam naturalem terminare, non generare aut procreare debet. At ex philosophia naturali pura et impermixta meliora speranda sunt.”—*Nov. Org.* I. 96.

through *negative instances*. Following the example of Socrates, Plato applies the test of a negative instance to all definitions, so that these are continually rectified and purified by contradictory instances, which here are not natural phenomena, but definitions or propositions. In the "Republic," the idea of justice is under discussion, and it appears to Cephalus that the just man should give to every one his own, and should therefore return what he has borrowed, when he is asked for it. "Is it then just," asks Socrates, "to return borrowed weapons, where the lender is mad when he asks for them?" Manifestly not. Here is the negative instance; it shows that the first definition of justice was too broad, and therefore does not meet the point. What C  phalus imagines to be just, is not so in every case. To collect all the examples of the negative instances to be found in Plato, it would be necessary to copy out the whole of his dialogues. In the same manner, Bacon uses the negative instance as a test, to discover whether the conditions of natural phenomena that present themselves are essential or not. Plato makes experiments with ideas, as Bacon with things. With both of them, the mode of proof consists in so testing that which is to be proved, as to ascertain whether, in every respect, it will agree with their hypothesis;

in other words, whether it will endure the ordeal of negative instances. Thus, both make experiments; one logically, the other physically; one to discover the true idea among our notions, the other to find out the true laws in nature. They proceed by similar roads, viz., *per veram inductionem*, to opposite goals. Bacon himself perceived this affinity, and it made him prefer Plato to Aristotle. "An induction that is to be useful for the discovery and demonstration of the sciences and arts, should separate nature by proper rejections and exclusions, and then, after a sufficient number of negatives, come to an affirmative conclusion. This has not yet been done, nor even tried, except by Plato, who certainly makes use of this form of induction to some extent, for the purpose of sifting definitions and ideas." *

The Platonic induction leads to a world of ideas, which is formed by the way of continued abstraction; the Baconian induction leads to a copy of the real world, by the way of continued experience. From Plato's point of view the real

* "At inductio quæ ad inventionem et demonstrationem scientiarum et artium erit utilis naturam separare debet, per rejectiones et exclusiones debitas; ac deinde, post negativas tot quot sufficiunt, super affirmativas concludere; quod adhuc factum non est, nec tentatum certe, nisi tantummodo a Platone, qui ad excutiendas definitiones et ideas, hac certe forma inductionis aliquatenus utitur."—*Nov. Org.* L 105.

world itself appears a copy, of which philosophy is to find the original. From the Baconian point of view, on the contrary, the real world appears as the original, of which philosophy must make a copy. The Platonic abstraction consists in the analysis of ideas; the Baconian, in the analysis of things,—an anatomical dissection of bodies, the “dissectio naturæ,” the “anatomia corporum,” which Bacon requires in lieu of the Platonic abstraction. “For we are establishing in the human intellect a true model of the world, such as it is found to be, not such as any one’s reason may have suggested; but this cannot be effected without performing a most diligent dissection and anatomy of the world.” *

3. THE AFFINITY OF BACON TO DEMOCRITUS AND THE ATOMISTS.

We now come to the last relation between Bacon and the Greek philosophy, and here we find an indubitable point of contact. Bacon opposes Aristotle on every point, and with all his might. He will have nothing in common with him, deeming that his method is as useless and as

* “Etenim verum exemplar mundi in intellectu humano fundamus; quale invenitur, non quale cuipiam sua propria ratio dictaverit. Hoc autem perfici non potest, nisi facta mundi dissectione atque anatomia diligentissima.”—*Nov. Org.* I. 124.

sterile as his doctrines. His affinity to Plato is merely of the formal kind; he finds here his own method, the *true* induction, but it is employed for futile ends or useless devices. For the Platonic ideas or imaginations have nothing in common with human life, and therefore cannot have any practical influence upon it.

However, there is one doctrine of antiquity which has a material affinity to Bacon, namely, Materialism itself, or, as the ancients called it, the Physiology of the Præ-Socratic period, which stands as the opposite pole to formal philosophy generally. To the Atomistic philosophy of Democritus and his disciples, sometimes involuntarily, sometimes intentionally, Bacon is inclined above all other systems. That earliest philosophical age was devoted to a lively contemplation of nature, to the matter of things themselves, not to forms abstracted from them. The principles here laid down for the foundation of things were of a corporeal nature, and coincided with the *elements*. Bacon's dislike to formal philosophy occasions and explains his inclination to Materialism. His opposition to Aristotle occasions and explains his affinity to Democritus. Bacon and Democritus form, as it were, two opposite poles to that formal philosophy that governed classical antiquity, and afterwards the scholastic

middle ages. Democritus is the pole beyond it, Bacon the pole on this side. "It is better to dissect nature than to abstract," says Bacon, "and this has been done by the school of Democritus, which penetrated more deeply into nature than the rest."* Among all the Greek philosophers Bacon distinguishes the Atomists as the most sagacious, observing that they possessed and propagated a sense for true natural science, and were only obscured and, as it were, outshone by the philosophy of Aristotle and Plato, after the Genseric and Attilas — the barbarians of the irruption — had annihilated the scientific sense of the world altogether. For in the days of civilised antiquity the influence of Democritus never ceased. He and the whole age of Præ-Socratic philosophy are opposed by Bacon to the authority of Aristotle. The tendency of Aristotle to busy himself with words, rather than with the living truth of things, is best shown, according to Bacon, by a comparison of his philosophy with that of others, who were in repute among the Greeks. "For the *homoiomera* of Anaxagoras, the atoms of Leucippus and Democritus, the heaven and earth of Parmenides, the discord and concord of Empedocles, the resolution of bodies into the common

* "Melius est naturam secare, quam abstrahere, id quod Democriti schola fecit, quæ magis penetravit in naturam, quam reliquæ."

nature of fire, and their recondensation, as taught by Heraclitus, have about them somewhat of natural philosophy, and savour of the nature of things, of experience, and of corporeal reality; while for the most part the physics of Aristotle are nothing but logical terms, and are afterwards treated in his metaphysics under a more imposing name, and as if he were dealing rather with things than with words." *

Among all these natural philosophers of the Greeks Bacon gives the preference to the Atomists, with Democritus at their head. Their theory is the most natural; it penetrates corporeal things in the proper sense of the word, for it traces them to their ultimate particles, and is therefore more materialistic than any other. Democritus laid down the correct principle that matter was eternal, and that, far from being destitute of all shape and form, it was determined from the beginning by motive and forming powers; that matter and form

* "Habent enim Homoiomera Anaxagoræ, Atomî Leucippi et Democriti, Cœlum et Terra Parmenidis, Lis et Amicitia Empedoclis, Resolutio corporum in adiaphoram naturam ignis et Replicatio eorundem ad densum Heracliti, aliquid ex philosopho naturali, et rerum naturam et experientiam et corpora sapiunt; ubi Aristotelis Physica nihil aliud quam dialecticæ voces plerunque sonet; quam etiam in Metaphysicis sub solenniore nomine, et ut magis scilicet realis, non nominalis, retractavit."—*Nov. Org.* I. 63.

were absolutely inseparable, had never been parted from each other in the nature of things, and therefore were not to be separated, though they might be distinguished in the interpretation of nature. That formless matter, of which Plato, Aristotle, and their disciples talk so much, is not the matter of things, but only the matter of that vague and obscure discourse which is the boast of word-philosophy. The only fault of Democritus consists in this, that he did not arrive at his correct and irrefutable principles by a methodical interpretation of nature, but anticipated them by the mere operation of the unassisted intellect; that is to say, he maintained them metaphysically, instead of proving them physically, by the way of experiment.* This fault of Democritus belongs to

* This is the reason why Bacon did not identify his philosophy with that of the Atomists. He desired physical, not metaphysical atoms. Physical atoms are corpuscles or particles, *i. e.* the ultimate and smallest parts of body that we can perceive and exhibit. The atoms, in the metaphysical or strict sense of the word, are mere thoughts, or *entia rationis* (Gedankendinge), that no investigator of nature has ever yet discovered. This was clearly perceived by Bacon, who therefore says that his method will not lead to a theory of atoms, that presupposes a vacuum, and an immutable matter (both of which are false), but to real particles, such as are discovered to be. [*“Neque propterea res deducetur ad Atomum, qui præsupponit vacuum et materiam non fluxam (quorum utrumque falsum est), sed ad particulas veras, quales inveniuntur.”*—*Nov. Org.* II. 8.]—*Author's Note.*

the Greek philosophy in general, the character of which is most distinctly imprinted on the Atomists. Of all the ages of philosophy this earliest age of Greek physiology was most akin to nature and truth, at least so it appeared in the eyes of Bacon, who regarded it as the only one engaged in the serious pursuit of natural science. The following ages, from Socrates down to Bacon himself, corrupted natural philosophy, and thus brought science in general into a state of ever-increasing degeneracy. All genuine natural philosophy was spoiled and thrust back, first by the Platonic doctrine of ideas, which put abstract thoughts in the place of things; then, further, by the Aristotelian logic, which for both things and thoughts substituted words; afterwards by the moral philosophy of the Romans; and, last of all, by that mixture of Aristotelian philosophy with Christian theology, which brought barbarism and the perversion of intellect to perfection. That earliest age, not yet vitiated by false philosophy, nor much perplexed by *idola theatri*, had alone the right instinct, and was alone directed to the right purpose. To carry out this purpose nothing was wanting but scientific means. Without instruments, without method, these earliest natural philosophers could not think conformably to experience, or in a truly physical spirit. What

could they do but anticipate nature, when they were unable to interpret her in a scientific manner? Their physics became metaphysics from the very first. They were right in seeking for the principle of things in the elements, in real natural forces, but these were at once converted, in their view, to general axioms. They discovered their principles rather by a divining glance than by deep investigation, and, being without a secure method of experience, were directed to the unassisted intellect. They had not a false method, — they had no method at all. The intellect left to itself cannot know anything, it can only fabricate. Thus in Bacon's eyes the oldest philosophy seems, as far as its subject-matter is concerned, to be akin to nature and truth, but, with respect to its form, to belong more to imagination than to science. Nature and truth are to be found in it, not as objects of clear knowledge based upon experience, but as a myth projected by the poetical intellect. Here Bacon discovers the affinity between Greek physiology and mythology, and here we have the origin of his views respecting the "Wisdom of the Ancients." Physiology appears to him as poetry, which indeed it was in the earliest times, and mythology as wisdom in the garb of poetical narrative, that is to say, as a fable or allegory of nature and her

powers, — of men and their manners; for what can poetry do but copy reality? In this, therefore, the oldest poetry and the oldest wisdom agree with each other, that they stand nearest the simple truth, from which they have not been seduced by a false culture, and express, by imagery, the sense of nature, with which they are inspired. Thus Bacon could only regard the myths of antiquity as allegories, and attempted an allegorical explanation of them in his book on the “Wisdom of the Ancients.” And at this point of view he arrived, it seems, by two. By one he finds in the earliest age scientific myths, — fables that appear as important theories, and, when stripped of their poetical veil, are converted into physiological propositions, that more accord with his own views than all the systems of a later period. But if, in some cases, the myths have evidently an allegorical significance, why not in many other cases also? If there are scientific why not also moral and political myths? Thus could Bacon reason, and thus, in accordance with such reasoning, could he attempt to apply the allegorical mode of interpretation, that in some cases seemed to be imperatively enjoined, by the nature of things, to many similar cases. Nay, it is not enough to say that he *could* do this. After the discovery that he thought he

had made in reviewing the earliest age of the philosophy that had preceded him, he could not do otherwise than prefer the allegoric interpretation of ancient poetry to every other. He was further impelled in this direction by the view which he took of poetry itself; and here we have the other path, to which we have already alluded. The one path leads by *induction* from a historical fact, which Bacon generalises by applying it to many cases; the other leads by *deduction* from a general theory to an experiment, which is to confirm the presupposed theory, and exemplify it in a series of instances. Both meet at one point, and this point is Bacon's "Wisdom of the Ancients." The shorter of the two paths, — the one which leads to the goal in a straight line, — is the second, which is the immediate result of Bacon's theory of poetry.

CHAP. VII.

THE BACONIAN PHILOSOPHY IN ITS RELATION TO POETRY.

WHILE critically reviewing the preceding systems of philosophy, Bacon at last finds himself in the presence of poetry. The only point of contact between his own philosophy and the past is in that earliest age, when science and poetry were still identical. The Baconian mind is most remote from the Aristotelian scholasticism; in a certain sense it approaches the Platonic, and most of all it accords with the atomistic view of Democritus. Here the Baconian philosophy, and that which preceded it, begin to diverge. They converge as they approach mythology, the poetical age of science, when philosophy and poetry still held intercourse with each other. Hence the interest which Bacon takes in the myths of antiquity. This interest has, in the Baconian philosophy itself, a deeper foundation than is commonly supposed. It is supported by the affinity which Bacon discovers between himself and the philosophy of the præ-Socratic age. His interpretation of the ancient myths, and his relation to this kind of

poetry, may partly, at least, be explained by the position taken by the Baconian with reference to the earlier philosophy ; for this interpretation is, partly, at least, a translation of mythology into Baconian physiology, and is therefore one of the exponents by which Bacon's relation to his predecessors is made clear to us. But his interpretation of the myths may also be immediately deduced from Bacon's view of poetry in general ; and we are the more justified in making this deduction, inasmuch as it was made by Bacon himself. His poetical principles preceded and foreshadowed his interpretation of the myths.

I. THE BACONIAN POETICS.

The purpose of the Baconian philosophy is to direct the theoretical to the practical mind. The common aim of both should be such a cultivation of man, as will generally be useful in increasing his dominion and promoting his happiness. The practical mind, by means of invention, should remodel the world ; the theoretic, conformably to experience, should copy it.* What can this copying of the world be but a description and

* In the original there is an antithesis between "umbilden" and "abbilden," which vanishes in translation. — J O.

interpretation? The description of the world is the history of nature and humanity. The interpretation of the world is science, by which the information given by history is duly apprehended. History belongs to the memory, which collects and preserves our experiences; science to reason, which reflects on these experiences, and reduces them to general laws. But, besides memory and reason, the theoretic mind has another faculty,—imagination. Hence there is a possibility of a copy of the world made by the imagination, less accurate in detail than the copy in the memory; less regulated by law than the copy in the reason; and distinguished from them both by the circumstance that it is not found, but invented. Perception and reason should be faithful mirrors, which reflect things unaltered. Imagination, on the other hand, is a magic glass that alters while it reflects. The imaginary copy of the world which it invents is *poetry*, which, in the realm of the theoretic mind, holds the middle province between history and science.

In its operation poetry is akin to the practical mind, for it is inventive; but its end is only theoretical, as it consists in a mere representation of the world. In the mode of representation poetry differs from both science and history; for

these must represent the world as it is, whereas poetry may represent it such as the human heart would desire it to be ; these bring the human mind to the level of external things ; poetry brings the things to the level of the mind. “ Therefore poetry was ever thought to have some participation of divineness, because it doth raise and erect the mind, by submitting the shows of things to the desires of the mind, whereas reason doth buckle and bow the mind unto the nature of things.”* What then is poetry from the Baconian point of view ? A copy of the world, not only *in*, but *after* our own mind ; a copy of the world, exhibited among the idols of the imagination. Here, then, we have poetry as a mere mirror of the world, not as a mirror of the human soul ; as a mere copy of history, not as a copy of our own hearts. In other words, lyrical poetry is not recognised by Bacon. This follows as a necessary consequence from his point of view ; according to which, the theoretic mind in general merely copies the world, while the particular copy that exists in poetry is of the imaginary sort. Bacon himself says : “ We exclude satires, elegies, epigrams, odes, and the like, from our discourse, and class them with philosophy and the

* “ Advancement of Learning,” Book II. Compare “ De Augment.” II. 13, where “ history ” is added to “ reason.” — J. O.

arts of oratory." * Here, then, is the peculiar limit of the Baconian theory of poetry ; it denies lyrical poetry, and is, indeed, unable to explain it. Thus it not only overlooks a whole mass of poetry that certainly exists, by whatever name it may be called, but what is more, it overlooks the inexhaustible source of all poetry whatever,—all that renders the human imagination inventive, and gives it a poetical turn. Lyrical poetry is the expression of that which inspires the imagination, and thus makes it capable and desirous of poetry,—the expression of that which is the condition precedent, and the stimulus of poetical and artistic activity in general. There is no artistic creation without imagination ; there is no creative imagination without a deep internal emotion, and what the heart† suffers from this emotion is revealed by lyrical poetry. He who so explains poetry as to exclude the lyrical kind, conceives poetry and art in general without creative imagination or internal emotion (*Gemüthsbewegung*), and therefore naturally retains the mere prose of both. This will appear plainly enough in the case of Bacon, whose views of poetry are far

* "Satiras et Elegias et Epigrammata et Odas et hujusmodi ab instituto sermone removemus, atque ad philosophiam et artes orationis rejicimus."—*De Augment.* II. 13.

† The original word is the untranslatable "Gemüth."—J. O.

more prosaic than he is himself. He begins by classing the essentially ultra-poetical under rhetoric,—that is to say, prose; and he winds up by ranking the essentially prosaic, that is to say, allegorical poetry, as the highest order of the poetical. His view of poetry is the exact converse of the truth. Where it derives everything from its primary and natural source, he does not recognise it at all; where it is just on the point of turning into prose, but has not quite thrown aside the veil, it appears to him at the very summit of its power and dignity. But what is left in poetry if the lyrical kind is excluded? Nothing but a copy of history, in which events are exhibited in the narrative form, as belonging to the past; in the dramatic form, as actions of the present time; in the allegoric form, as if pregnant with significance. The poetical copy of history is either narrative, dramatic, or parabolic. Of epic poetry, Bacon says, it is a “mere imitation of history,” of dramatic (or representative*), that it is “a visible history,—an imitation of actions as if they were present; the parabolic is “a history with a type, presenting the intelligible to the senses.”

* “Dramatic” is the word used in “De Aug.,” “Representative” the word in the “Advancement.” Compare *De Aug.* II. 13.—J. O.

Epic poetry borders on history, parabolic poetry on science. The former exhibits history, and presupposes tradition; the latter interprets history, and seeks explanation. Since the whole purpose of Bacon is to convert history (or the description of the world) into science (or the interpretation of the world), it may easily be understood why, among all the kinds of poetry, that is most attractive to him which stands nearest to science. The parabolic kind is, with him, the most important; "it stands pre-eminent above the rest." It rivets the imagination by its images, and the significance of these incites the understanding. Thus it forms, as it were, the introduction, the preparatory school, the first, child-like, fanciful expression of science,—and its didactic value is, in Bacon's eyes, its poetical value also. It is not for the sake of art, but for the sake of science, that the importance of allegorical poetry is thus magnified. This kind of poetry appears more poetical than the rest, inasmuch as it is more useful and more serviceable to science. It converts history into an allegory or type, either to veil mysteries, or to give a sensible form to truths. In the former case it is mystical, in the latter didactic. Mystical symbolism is subservient to religion, didactic to science. The sacred mysteries of religion are veiled by symbols from

the eyes of the multitude, while the truths of nature are, by the very same means, rendered comprehensible and accessible to all. Menenius Agrippa, by his fable, convinced the Roman people of the justice of political distinctions, and in a similar spirit science approached mankind in the earliest ages: "For when the devices and conclusions of human reason (even those that are now trite and common) were new and unfamiliar, their subtilty surpassed the capacity of the human mind, unless they were brought nearer to the senses by images and examples of this kind. Hence, in the early ages, fables of all sorts, parables, enigmas, and similes everywhere abounded. Hence the symbols of Pythagoras, the enigmas of the Sphinx, the fables of Æsop, and the like. Even the apophthegms of the ancient wise were often expressed in the form of similitudes. As hieroglyphics were more ancient than letters, so were parables more ancient than arguments. Even to the present day, their force is (as it always was) pre-eminent, since no argument can be so perspicuous, nor can any example, however true, be equally apt."*

* "Cum enim rationis humanæ inventa et conclusiones (etiam eæ quæ nunc tritæ et vulgatæ sunt) tunc temporis novæ et insuetæ essent, vix illam subtilitatem capiebant ingenia humana, nisi propius eæ ad sensum per hujusmodi simulachra et exempla.

This is the point of view from which Bacon understands the fables of antiquity. These stories of gods and wonders are copies of the world (of nature, and of man), executed by the imagination. But they are not natural copies. What, then, can they be but copies with a special signification? They are neither epic nor dramatic; what, then, can they be but parabolic? They are not so much copies as symbols* of the world, which were required by the earliest philosophy to give its truths a sensible form. It is to the interest of science to explain the sense, which these fables express by images — as it were, by hieroglyphics. This interpretation of myths, which can only be allegorical, is reckoned by Bacon among the scientific problems yet to be solved; and he himself attempts a solution by way of example. “Inasmuch as the attempts that have been made to the present time to interpret these parables (made as they have been by men unskilled, and without

deducerentur. Quare omnia apud illos fabularum omnigenarum et parabolarum et ænigmatum et similitudinum plena fuerunt. Hinc tesserae Pythagoræ, ænigmata Sphingis, Æsopi fabulæ, et similia. Quinetiam apophthegmata veterum Sapientum fere per similitudines rem demonstrabant. . . . Denique ut hieroglyphica literis, ita parabolæ argumentis erant antiquiores. Atque hodie etiam, et semper, eximius est et fuit parabolarum vigor; cum nec argumenta tam perspicua nec vera exempla tam apta esse possint.”—*De Aug.* II. 13.

* “Weniger Abbilder als Sinnbilder.”—J. O.

more than common-place learning,) are by no means satisfactory to us, it appears that a philosophy, according to the ancient parables, is to be classed among *desiderata*. Of such a work we will add an example or two; not, perhaps, because the matter is of great moment, but that we may adhere consistently to the principle we have laid down, which is to this effect, that whenever we class any work among the *desiderata* (and our meaning might otherwise be somewhat obscure), we shall invariably give precepts or proper examples for preparing the work desired, lest any one may think that we have merely taken a superficial glance at such objects, and that, like augurs, we have measured regions in our mind, without learning by what road to enter them. That any thing else is wanting, with respect to poetry, we do not find." *

* "Cum vero quæ circa harum parabolarum interpretationem adhuc tentata sint, per homines scilicet imperitos nec ultra locos communes doctos, nobis nullo modo satisfaciant; Philosophiam secundum Parabolas Antiquas inter Desiderata referre visum est. Ejus autem operis exemplum unum aut alterum subjungemus. Non quod res sit fortasse tanti, sed ut institutum nostrum servemus. Id hujusmodi est, ut de operibus illis quæ inter Desiderata ponimus (si quid sit paulo obscurius) perpetuo aut præcepta ad opus illud instruendum, aut exempla proponamus; ne quis forte existimet levem aliquam tantum notionem de illis mentem nostram perstrinxisse, nosque regiones sicut augures animo tantum metiri, neque eas ingrediendi vias nosse. Aliam aliquam partem in Poësi desiderari non invenimus."—*De Aug.* II. 13.

Thus, the poetics of Bacon lead directly to his work "On the Wisdom of the Ancients." Here, by a series of examples, the solution of the problem is prefigured. Towards this solution, Bacon's poetics furnish not only precepts, but also illustrative cases, that are also to be found in the treatise "On the Wisdom of the Ancients." The myths of Pan, Perseus, and Dionysus here serve him as so many prerogative instances. In the first, we have a specimen of a Cosmic or physical truth; in the second, of a political truth; in the third, of a moral truth,—all expressed in symbols.

II. THE BACONIAN INTERPRETATION OF THE ANCIENT MYTHS.

THE FABLE OF EROS.

What Bacon terms "philosophy according to the ancient parables," signifies the resolution of myths into philosophemes, of poetry into "wisdom," of sensible images into pure thought. An attempt of the sort was made by Bacon in a very remarkable treatise, which forms, as it were, the transition from his Democritic views to that interpretation of myths, by which he connects an antique fiction with his own physiological principles. If his theory of poetry allowed of no interpretation of myths but the allegorical, nothing could be more opportune to

his purpose than the simultaneous discovery of the same myth in the mouths both of ancient poets and philosophers, — the discovery that both employed the same symbol for a like end. Now there was no myth that more riveted his attention than that which was connected with natural philosophy, and was based on cosmogonic theories; and among all cosmogonic theories there was none that to him appeared more correct than the atomic doctrine of Democritus, — that system of physiology that laid eternal matter, with its operative and forming forces, at the foundation of all natural phenomena. Conformably to this theory, Bacon endeavoured to solve the symbol, in which poets and philosophers had explained and embodied the origin of the world. This is the fable of Eros, not the son of Aphrodite, but the oldest of the gods, the fashioner of the world, of whom some say that he was without origin or parent (*sine parente, sine causa*), others that he was the offspring of Night and Chaos. This Eros, with his attributes, is to Bacon the symbol of that original matter, with its forces, which to him was the truest of all ancient hypotheses. This theme is the subject of Bacon's treatise "On the Principles and Origins of Things, according to the fables of Cupid and Heaven; or the philosophy of Parmenides, Telesius, and more particularly of Democritus, treated in the fable of

Cupid." * To this interpretation Bacon seems to have attached the greatest value. He repeats it as often as he can. In his treatise on the "Wisdom of the Ancients," it returns again, under the heads, "Cœlum, or beginnings," and "Cupid, or an atom."

Throughout all the thirty-one instances with which Bacon makes his experiments in the "Wisdom of the Ancients," we are less interested in the interpretation itself than in the interpreter's point of view; and in the latter only because, on the one hand, it shows the relation of the Baconian philosophy to antiquity, and, on the other, it exhibits to us a very striking peculiarity of the Baconian mind. Bacon presupposes that the myths are parables, without in the least troubling himself about their history, without investigating their origin, or their popular and religious elements, without distinguishing their earlier from their later forms, their epic from their allegorical side. Parables are equations, of which one member is given, and the other is to be discovered. What is given is the image, what is to be discovered is the sense. Bacon would convert myths, which he regards as parables, into similes;

* "De principiis atque originibus secundum fabulas Cupidinis et Cœli sive Parmenidis et Telesii, et præcipue Democriti philosophia, tractata in fabula de Cupidine."

and therefore he writes at the head of each solution the equation * which is its subject. The legends which follow each other without critical order are to him so many riddles, which he solves with inventive tact, but for the most part in the most arbitrary manner. As the fictions of antiquity are only equal to themselves, and do not require a second member, the discovery of the latter is the mere sport of Bacon's unfettered imagination. His treatment of myths is like Æsop's treatment of animals; he puts into them the truth that he means them to signify, so that he alone is, in this case, the allegorical poet. He is no more an interpreter of the myths than Æsop is a zoologist.

Nevertheless, the manner in which Bacon *plays* with the myths, while he *seriously* purposes to explain them, is, in many respects, highly characteristic. We see here as plainly as possible how inappropriate the Baconian mode of thought becomes when applied to the poetry of antiquity, or, indeed, to history in general; we see how small is its ability to apprehend the peculiar and original elements in *historical* processes, while it endeavours, with so much zeal and circumspection, to explain *natural* processes in accordance with their own objective properties, apart from all

* Dr. Fischer supposes the sign of equality substituted for the "or" of Bacon's titles, thus :—** Proteus = matter.*—J. O.

human analogies. Moreover, Bacon's inclination and talent for the discovery of analogies nowhere appears more unfettered and arbitrary than here, where he is without that serviceable polar-star on which his spirit of combination could rely in the region of nature. His interpretation of the myths, on which he wastes so much profundity, with as much recklessness, is a striking example of those fallacious analogies, against which he himself has warned us in his "Organum." One example will serve us in the place of many. He regards the god Pan as the symbol of nature, who is made to embody herself in this image, just as she appears to *him*. With this intention must antiquity, as he thinks, have devised the myth of this deity. Pan represents the aggregate of earthly things, which are doomed to be transient, and to which a definite period of duration is assigned by nature; and therefore the Parcæ are his sisters. The horns of Pan are pointed upwards; and, in the same manner, nature ascends from individuals to species, and from species to genera, after the fashion of a pyramid. The horns, in which the pyramidal form is retained, reach to the sky; thus the highest generic ideas lead from physics to metaphysics, and speculative theology. The body of Pan is covered with hair, symbolising the rays of light that emanate from shining bodies, and is,

moreover, composed of the human and the brute forms, to correspond to that transition from a lower to a higher grade,—to that combination that everywhere appears in nature. The goat's feet of Pan denote the upward tendency of terrestrial bodies; the pipe symbolises the harmony of the world; the seven reeds signify the seven planets; the crooked staff represents the "circular" operations of Providence; lastly, Echo, who is married to Pan, is a symbol of science, which should be the echo and copy of the world.

In this spirit does Bacon interpret the myths of antiquity. His explanations are travesties, in which the comic intention is wanting, and are therefore all the more glaring parodies of serious interpretation. Considered with respect to the myths, they are so utterly worthless, that no one could desire a serious refutation of them; but so far as they throw a light on Bacon himself, they are important. It is their importance in this latter respect that we alone have to demonstrate. We have to show our readers how, *by the path of his own philosophy*, Bacon arrived at his peculiar interpretation of the ancient myths; for this was by no means, as many suppose, and, indeed, as every one must think at the first glance, — a mere idle pastime.

There are, of course, here and there, a few

instances of happy and judicious interpretation. Some myths are imprinted with characters proper to the human species, and therefore rivet our attention as types of mankind, as if they were mirrors of our own dispositions. Thus Prometheus has become the involuntary type of a mind that strives upwards, confident and rejoicing in its own independent strength; and in this type have Bacon and Göthe seen themselves prefigured. Bacon sees in the mythical Titans the inventive mind of man, that makes nature subservient to its own ends, establishes the dominion of man over the world, and exalts human power to an unlimited degree, by setting it up against the gods.

As Bacon sees in Prometheus the type of the aspiring mind, rendered powerful by invention, so does Narcissus appear to him the type of human self-love. He makes use of the fiction, that by means of its several features he may describe this quality; and we must admit that, much as Bacon distorts the poet's details, and little as his interpretation accords with the character of the mythus, it proves that he himself had a subtle knowledge of human nature. He has missed the poet's meaning, but he has so happily characterised self-love that we cite his description in his own words:—

“ They say that Narcissus was exceeding fair

and beautiful, but wonderful proud and disdainful; wherefore, despising all others in respect of himself, he leads a solitary life in the woods and chases with a few followers, to whom he alone was all in all; amongst the rest there follows him the nymph Echo. During his course of life it fatally so chanced that he came to a clear fountain, upon the brink whereof he lay down to repose himself in the heat of the day; and having espied the shadow of his own face in the water, was so besotted and ravished with the contemplation and admiration thereof, that he by no means possibly could be drawn from beholding his image in this glass; insomuch that by continual gazing thereupon he pined away to nothing, and was at last turned into a flower of his own name, which appears in the beginning of the spring, and is sacred to the infernal powers, Pluto, Proserpine, and the Furies. This fable seems to show the dispositions and fortunes of those who, in respect of their beauty or other gift wherewith they are adorned and graced by nature without the help of industry, are so far besotted in themselves as that they prove the cause of their own destruction. For it is the property of men infected with this humour not to come much abroad or to be conversant in civil affairs; specially seeing those that are in public

places must of necessity encounter with many contempts and scorns which may much deject and trouble their minds; and therefore they lead for the most part a solitary, private, and obscure life, attended on with a few followers, and those such as will adore and admire them, like an echo, flatter them in all their sayings, and applaud them in all their words; so that, being by this custom seduced and puffed up, and, as it were, stupified with the admiration of themselves, they are possessed with so strange a sloth and idleness that they grow in a manner benumbed and defective of all vigour and alacrity. Elegantly doth this flower, appearing in the beginning of the spring, represent the likeness of these men's dispositions, who in their youth do flourish and wax famous; but, being come to ripeness of years, they deceive and frustrate the good hope that is conceived of them. Neither is it impertinent that this flower is said to be consecrated to the infernal deities, because men of this disposition become unprofitable to all human things. For whatever produceth no fruit of itself, but passeth and vanisheth as if it had never been, like the way of a ship in the sea, that the ancients were wont to dedicate to the ghosts and powers below." *

* "Wisdom of the Ancients. Narcissus or Self-love."

It may be seen from this example, which we have purposely selected, how recklessly Bacon proceeds with the different features of the fable. His Narcissus is a different person from the Narcissus of Ovid, and the chief poetical trait of the whole story is precisely the one that Bacon has most perverted. In the myth Narcissus despises Echo, who pursues him; in Bacon's interpretation he seeks Echo, as the only person whose society he can endure. Of the devoted nymph Bacon makes a parasite, and of Narcissus a generally human type, which he delineates with masterly success.

III. GREEK AND ROMAN ANTIQUITY.

BACON AND SHAKESPEARE.

For the historical and religious foundation of mythology Bacon has neither sense nor standard. He takes the myths as airy creations of an arbitrary imagination, as poetical vehicles for instruction, which he explains and modifies after the form of his own mind. But mythology remains the foundation of antiquity; and as Bacon is not aware of this fact he is equally unable to judge and understand the particular world that rests upon that foundation. He judges of antiquity as a critical spectator with an uncongenial mind. He was without sense for the historical

peculiarity of antiquity, he was wanting in that sympathetic appreciation of the antique, which here, if anywhere, is requisite for a thorough knowledge. Throughout the whole of that "enlightenment" (*Aufklärung**) which owes its origin to Bacon, this deficiency continues. In the German "enlightenment" there was the same deficiency, but it was supplied by Winckelmann and his successors. On the English and French side, on the other hand, the void has never been filled up, and it seems as if the ruling mind of these nations lacks the foundation which is necessary for such a purpose, and cannot be acquired, much less compensated by any empirical knowledge. This foundation rests upon an affinity to the antique which distinguishes the German from the other intellectual nations of the modern world, and perhaps serves as a compensation for so many defects. We are here speaking of *Greek* antiquity, which Bacon could not distinguish from the Roman. Nevertheless the distinction is so

* Although the word "*Aufklärung*" really means the same as the English "enlightenment," it is used by all German authors in a manner that appears harsh in translation. It generally signifies a triumph of the intellect over prejudice and superstition, and is sometimes almost identical with the English "free-thinking." The 18th century (before the French revolution) is especially the age of "*Aufklärung*," and hence, when used by certain critics, the word conveys censure rather than praise. Here it signifies the series of "enlightened" persons.—J. O.

great that the two kinds of antiquity should scarcely be called by a common name. Classical antiquity, then, in a specific sense, is the Greek upon a Homeric basis. Bacon, on the other hand, consistently with the spirit of his nation and his age, only saw Greek antiquity through the medium of the Roman. In his own manner of thought and feeling there was something kindred to the Roman mind, something that held the same relation to the Greek mind that prose does to poetry. As the mythological fictions of the Greeks appeared to the Roman intellect, so, or nearly so, did they appear to that of Bacon. The Roman explained the ancient fictions in that allegorical manner that came into vogue among the later philosophers after Aristotle, especially the Stoics, and was first established by Chrysippus. These later philosophers were already in a state of transition from the Greek to the Roman world. Notwithstanding the endeavours of Bacon, in his preface to the "Wisdom of the Ancients," to repudiate the Stoics, more especially Chrysippus, he has no right whatever to regard their mode of interpreting myths as more vain and arbitrary than his own. The whole age in which he lived only knew the Greek antiquity in the spirit of the Roman, with which the national mind of the English in general (as a consequence

of their position in the world), and the Baconian thought in particular, both sympathised. The affinity between the Roman and Baconian mind consists in the preponderance of that practical sense which considers everything in reference to man's utility, and the chief and ultimate object of which is the extension of human dominion. This parallel may be pursued through several points. The Romans aim at dominion over nations, Bacon at dominion over nature. Both employ invention as the means to this end. With the Romans invention is military, with Bacon it is physical; and the victorious wars in the one case correspond to the victorious experiments in the other. That their wars may have a secure foundation*, the Romans devise civic laws, by which internal relations are established and regulated. To obtain a firm basis for his experiments, Bacon seeks natural laws, which determine the internal conditions on which the success of the experiments depends. Both frame their laws under the guidance of experience, one in the interest of politics, the other in that of natural science. Practical ends determine the direction both of the Roman and Baconian mind, and produce in both a certain affinity of thought.

* Literally, "Hintergrund" (background).—J. O.

In accordance with that view of practical utility, which was a result of their national and political aims, the Romans appropriated to themselves the whole world of Grecian gods, giving it a civic position, and driving imagination out of it. Thus, the Roman mind was naturally inclined to that allegorical interpretation of myths, by which a *naïve* fiction is made an affair of the reflective understanding, and is thus converted from a free creation of the fancy into an expedient devised for some purpose, didactic or otherwise. An allegorical interpretation of poetry is not possible at all, except on the supposition of the question: "What is the intention of the poem? what purpose does it serve?" To this question we have a conceivable answer in allegorical interpretation, — an answer that is just as prosaic, and as much opposed to the spirit of poetry, as the question itself. To the artist who employs them, allegories are only means, not ends, — never objects, but mere instruments, which he only uses when he cannot express his object without their aid. Allegory in poetry, as in art generally, is an expedient that proves a defect either in the natural means of the art itself, or in those of the artist. Poetry cannot be interpreted allegorically, until it is itself regarded as an allegory; that is to say, not as an end, but as the

means to an end. This was the Roman manner of apprehending the creations of Greek imagination, and the Baconian manner agreed with it.

The same affinity for the mind, and the same want of sympathy with the Greek, we again find in Bacon's greatest contemporary, whose imagination took as broad and comprehensive a view as Bacon's intellect. Indeed, how could a Bacon attain that position with respect to Greek poetry that was unattainable by the mighty imagination of a Shakspeare? For in Shakspeare, at any rate, the imagination of the Greek antiquity could be met by a homogeneous power of the same rank as itself; and, as the old adage says, "like comes to like." But the age, the spirit of the nation,—in a word, all those forces of which the genius of an individual man is composed, and which, moreover, genius is least able to resist,—had here placed an obstacle, impenetrable both to the poet and the philosopher. Shakspeare was no more able to exhibit Greek characters than Bacon to expound Greek poetry. Like Bacon, Shakspeare had in his turn of mind something that was Roman, and not at all akin to the Greek. He could appropriate to himself a Coriolanus and a Brutus, a Cæsar and an Antony; he could succeed with the Roman heroes of Plutarch, but not

with the Greek heroes of Homer. The latter he could only parody, but his parody was as ineffectual as Bacon's explanation of the "Wisdom of the Ancients." Those must be dazzled critics indeed who can persuade themselves that the heroes of the Iliad are excelled by the caricatures in "Troilus and Cressida." The success of such a parody was poetically impossible; indeed, he that attempts to parody Homer shows thereby that he has not understood him. For the simple and the *naïve* do not admit of a parody, and these have found in Homer their eternal and inimitable expression. Just as well might caricatures be made of the statues of Phidias. Where the creative imagination never ceases to be simple and *naïve*, where it never distorts itself by the affected or the unnatural, there is the consecrated land of poetry, in which there is no place for the parodist. On the other hand, where there is a palpable want of simplicity and nature, parody is perfectly conceivable, nay, may even be felt as a poetical necessity. Thus Euripides, who, often enough, was neither simple nor *naïf*, could be parodied, and Aristophanes has shown us with what felicity. Even Æschylus, who was not always as simple as he was grand, does not completely escape the parodising test. But Homer is safe. To parody Homer is to mistake him, and to stand so far

beyond his scope that the truth and magic of his poetry can no longer be felt; and this is the position of Shakspeare and Bacon. The imagination of Homer, and all that could be contemplated and felt by that imagination, namely the classical antiquity of the Greeks, are to them utterly foreign. We cannot understand Aristotle without Plato; nay, I maintain that we cannot contemplate with a sympathetic mind the Platonic world of ideas, if we have not previously sympathised with the world of the Homeric gods. Be it understood I speak of the *form* of the Platonic mind, not of its logical matter; in point of doctrine, the Homeric faith was no more that of Plato than of Phidias. But these doctrinal or logical differences are far less than the formal and æsthetical affinity. The conceptions of Plato are of Homeric origin.

This want of ability to take an historical survey of the world is to be found alike in Bacon and Shakspeare, together with many excellencies likewise common to them both. To the parallel between them — which Gervinus, with his peculiar talent for combination, has drawn in the concluding remarks to his “Shakspeare,” and has illustrated by a series of appropriate instances — belongs the similar relation of both to antiquity, their affinity to the Roman mind, and their

diversity from the Greek. Both possessed to an eminent degree that faculty for a knowledge of human nature that at once presupposes and calls forth an interest in practical life and historical reality. To this interest corresponds the stage, on which the Roman characters moved; and here Bacon and Shakspeare met, brought together by a common interest in these objects, and the attempt to depict and copy them. This point of agreement, more than any other argument, explains their affinity. At the same time there is no evidence that one ever came into actual contact with the other. Bacon does not even mention Shakspeare when he discourses of dramatic poetry, but passes over this department of poetry with a general and superficial remark that relates less to the subject itself than to the stage and its uses. As far as his own age is concerned, he sets down the moral value of the stage as exceedingly trifling. But the affinity of Bacon to Shakspeare is to be sought in his moral and psychological, not in his æsthetical views, which are too much regulated by material interests and utilitarian prepossessions to be applicable to art itself, considered with reference to its own independent value. However, even in these there is nothing to prevent Bacon's manner of judging mankind, and apprehending characters from agreeing per-

fectly with that of Shakspeare; so that human life, the subject-matter of all dramatic art, appeared to him much as it appeared to the great artist himself, who, in giving form to this matter, excelled all others. Is not the inexhaustible theme of Shakspeare's poetry the history and course of human passion? In the treatment of this especial theme is not Shakspeare the greatest of all poets—nay, is he not unique among them all? And it is this very theme that is proposed by Bacon as the chief problem of moral philosophy. He blames Aristotle for treating of the passions in his Rhetoric rather than his Ethics; for regarding the artificial means of exciting them rather than their natural history. It is to the natural history of the human passions that Bacon directs the attention of philosophy. He does not find any knowledge of them among the sciences of his time. "The poets and writers of histories," he says, "are the best doctors of this knowledge; where we may find painted forth with great life how passions are kindled and incited; and how pacified and refrained; and how again contained from act and further degree; how they disclose themselves; how they work; how they vary; how they gather and fortify; how they are inwrapped one within another; and how they do fight and encounter one with another; and

other the like particularities."* Such a lively description is required by Bacon from moral philosophy. That is to say, he desires nothing less than a natural history of the passions; — the very thing that Shakspeare has produced. Indeed, what poet could have excelled Shakspeare in this respect? Who, to use a Baconian expression, could have depicted man and his passions more "ad vivum"? According to Bacon, the poets and historians give us copies of characters; and the outlines of these images — the simple strokes that determine characters — are the proper objects of ethical science. Just as physical science requires a dissection of bodies, that their hidden qualities and parts may be discovered; so should ethics penetrate the various minds of men, in order to find out the internal basis of them all. And not only this foundation, but likewise those external conditions which give a stamp to human character — all those peculiarities that "are imposed upon the mind by the sex, by the age, by the region, by health and sickness, by beauty and deformity, and the like, which are inherent and not external; and, again, those which are caused by external fortune,"† — should come within the scope of

* "Advancement of Learning," ii. "De Augment. Scient." vii. 3.

† "Advancement of Learning," ii. For the whole passage compare "De Augment. Scient." vii. 3.

ethical philosophy. In a word, Bacon would have man studied in his individuality as a product of nature and history, in every respect determined by natural and historical influences, by internal and external conditions. And exactly in the same spirit has Shakspeare understood man and his destiny; regarding character as the result of a certain natural temperament and a certain historical position, and destiny as a result of character. The great interest that Bacon took in portraits of character, is proved by the fact that he attempted to draw them himself. With a few felicitous touches he sketched the characters of Julius and Augustus Cæsar, and his view of both was similar to that of Shakspeare. In Julius Cæsar he saw combined all that the Roman genius had to bestow in the shape of greatness, nobility, culture, and fascination, and regarded his character as the most formidable that the Roman world could encounter. And giving what always serves as the proof of the calculation in the analysis of a character; Bacon so explains the character of Cæsar, as to explain his fate also. He saw, like Shakspeare, that Cæsar was naturally inclined to a despotic feeling, that governed his great qualities and also their aberrations, rendering him dangerous to the Republic and blind with respect to his enemies. He wished says

Bacon, "not to be eminent amongst great and deserving men, but to be chief amongst inferiors and vassals."* He was so much dazzled by his own greatness that he no longer knew what danger was. This is the same Cæsar into whose mouth Shakspeare puts the words —

—— "Danger knows full well
That Cæsar is more dangerous than he.
We were two lions litter'd in one day,
And I the elder and more terrible."

Julius Cæsar, Act II. Sc. 2.

When Bacon, at last, attributes the fate of Cæsar to his forgiveness of enemies, that by this magnanimity he might impose upon the multitude, he still shows the dazzled man, who heightens the expression of his greatness at the expense of his security.

It is very characteristic that among human passions Bacon best understands avarice and ambition, and least understands love, which he ranks very low. Love was as foreign to his nature as lyrical poetry; but in one single case he perceived its tragic importance, and this very case was developed by Shakspeare into a tragedy. "You may observe," says Bacon, "that amongst all

* Compare Bacon's "Civil Character of Julius Cæsar," which, as well as the "Civil Character of Augustus," exists both in English and Latin.

the great and worthy persons, there is not one that hath been transported to the mad degree of love, which shows that great spirits and great business do keep out this weak passion. You must except, nevertheless, Marcus Antonius.* He has already said that love is "sometimes like a siren, sometimes like a fury," and it may be truly observed with respect to Cleopatra, as conceived by Shakspeare, that she appears to Marc Antony in both these capacities.

* Essay "On Love."

CHAP. VIII.

THE BACONIAN PHILOSOPHY AS THE "INSTAURATIO MAGNA"
OF SCIENCE. — ORGANON AND ENCYCLOPÆDIA.

HAVING fully ascertained the point of view which Bacon opposes to all preceding Philosophy, and which he establishes as his own, we now describe from the same point the scientific horizon of the Baconian mind. His philosophy is a completely new edifice, raised on foundations and directed towards ends totally different from those of all theories that have gone before. With these he has so little in common that he does not even build upon their ruins. Bacon leaves the old edifices of philosophy standing, when he has shown how insecure they are, and how little suited for the habitation of man. On a soil that has hitherto been unoccupied, and with instruments that have never yet been used, he will build altogether anew. The instrument that he employs is the "Novum Organum;" the ground-plan, according to which he proceeds,

is composed of the books “De Dignitate et Augmentis Scientiarum,”* which form, as it were, the new map of the “Globus Intellectualis;” the whole edifice itself he calls the “Instauratio Magna.” This edifice is not to be restored, but to be entirely new. We know already the plan and the instrument; we have now only to learn the arrangement in detail. The harmonious plan which is visible through the whole, is formed by a mind directed to new discoveries and inventions, that finds it cannot reside in any philosophical edifice, except a science based upon experience of the world, and using no means but experiment; a mind, whose experience and science are directed to nature above everything. The “Instauratio Magna,” therefore, consists of four principal parts: the ground-plan, the Organum, the experimental history of nature (*Historia Naturalis et Experimentalis*), the objects of which are the phenomena of the universe (*Phænomena Universi*), and the science raised on these foundations. To adhere to our simile, we may call the two last portions the upper stories in the pyramid of philosophy, of which the description of the world is the lowest, and science is the highest. These

* And more briefly set forth in the English treatise, “On the Advancement of Learning.”—J. O.

two stories are connected by the “ladder of the understanding,” which leads upwards from experience to science (*Scala Intellectus sive Filum Labyrinthi*), and by certain anticipations, deduced not from Idols, but from sound experience,—precursory theories (*Prodromi sive Anticipationes Philosophiæ Secundæ*), to which the investigator is impelled by experience, and which have only a provisional value, being always subject to the corrections of science. They are distinguished from objectionable anticipations by the perfect consciousness that they are only precursory, not conclusive. The following, therefore, are the divisions of the “*Instauratio Magna* :”—

1. De Dignitate et Augmentis Scientiarum.
2. Novum Organum.
3. Historia Naturalis et Experimentalis.
4. Scala Intellectus.
5. Prodromi sive Anticipationes Philosophiæ
 Secundæ.
6. Scientia Activa.

Of these divisions, the first, which forms the ground plan of the whole, is alone complete; the rest are mere sketches or fragments. Even of the “*Novum Organum*,” the first part alone is executed; the second was to comprise the aids to the understanding, but of these he has only specified

one*, with which we are already acquainted, and has given a mere prospective view of the rest. The most complete work belonging to the third division is the “*Silva Silvarum*; or, Natural History in Ten Centuries.” It would, however, be very unreasonable to make the fragmentary condition of his philosophy a cause of reproach against Bacon,—as this would be reproaching him for not living several hundred years. Separate parts of the edifice might doubtless have been more thoroughly completed if Bacon could have bestowed more time upon them. But the whole could not remain otherwise than unfinished, consistently with the plan of the founder, whose design was to make not a system, but a beginning. And this beginning, so rich in consequences, Bacon *did* make; in this sense he has completed his work, and would have completed it, even if he had not written nearly so much as now lies before us. The power that was to break open a new path, lay in the new outline and the new instrument (*Organum*), and to increase this power there was no need of a “*Silva Silvarum*.” He himself was but too well aware that time, in its progress, destroys systems of philosophy, to all appearance firmly established and hermetically closed.

* The “Prerogative Instance,” with its subdivisions.—J. O.

Hence, from the beginning, it was his intention to produce a philosophy which would progress *with* time, not endure in spite of it; and, perhaps, among all philosophers, Bacon has been the only one who, far from endeavouring to resist the stream of time, has designed a work so light that the stream will always carry it along. Such a work could not be a system, a concluded whole, an unwieldy edifice; it could not remain otherwise than a fragment,—an attempt that had scarcely proceeded beyond the plan and the instrument. The fragment was to be enlarged, the attempt was to be pursued, the plan was to be carried out, the instrument was to be used and improved. This fragmentary appearance of his philosophy appears quite consistent—nay, the necessary result of its own internal condition, as soon as it is regarded from the Baconian point of view. Through these very gaps in the philosophy, which the depreciators of Bacon's philosophy point out, comes a wholesome current of air, for which he has purposely left room. There are many contradictions in his theories—though not so many, by far, as our pretended critics would fain discover;—there are many inaccuracies in point of fact, and many physical errors, which Bacon shared in common with his age, but we may make allowance for all these contradic-

tions, inaccuracies, and errors, without diminishing by so much as a hair's breadth the force and power of the Baconian philosophy. This power has been proved by history. The incompleteness of the work was perceived,—nay, intended, by Bacon himself. At the conclusion of his ground-plan*, which we may appropriately call a "New Encyclopædia of the Sciences," he says: "I call to mind that reply of Themistocles, who, when the ambassador from a petty town had spoken very largely, rebuked him with the remark, 'Friend, your words require a state.' In the same manner I think it may be most rightly objected to me that my words require an age for their fulfilment, and I, answer again, 'Yes, perhaps a whole age to prove them; but many ages to fulfil them.'"[†]

By its very nature the Baconian philosophy could take no other form than that of a sketch, could express itself in no other mode than that of the Encyclopædia and the Aphorism. All the parts of his great "Instauratio" have remained sketches; the two that he most thoroughly per-

* The treatise "De Augmentis."—J. O.

† "Interim in mentem mihi venit responsum illud Themistoclis, qui cum ex oppido parvo legatus quidam magnanonnula perorasset, hominem perstrinxit; Amice, verba tua civitatem desiderant. Certe objici mihi rectissime posse existimo, quod mea verba sæculum desiderent; sæculum forte ad probandum; complura autem sæcula ad perficiendum."—*De Augment. Scient.* ix.

fected and elaborated are the chief of them all, — the outline and the *Organum*; of which the former consists of an encyclopædian and prospective view of human knowledge, the latter of aphorisms. Altogether Bacon has less necessity for a finished than for a comprehensive mode of expression. His larger works, such as those on the “*Advancement of Learning*” and the “*Novum Organum*,” were not completed but only enlarged outlines. The two books of his “*Encyclopædia*,” which first appeared in the English language*, were extended by Bacon into nine, “*De Dignitate et Augmentis Scientiarum*.” His treatise entitled “*Cogitata et Visa*,” was enlarged into the “*Novum Organum*.” Far from filling up or completing these enlarged outlines, Bacon much more sought to reduce them to a smaller compass. Thus his “*Descriptio Globi Intellectualis*” is an encyclopædia on a diminished scale; and in the “*Delineatio et Argumentum*” we have the most compressed form of the “*Novum Organum*.”

Unquestionably the “*Novum Organum*” is the ripest and most peculiar fruit of the Baconian mind. If that treatise, which Bacon entitled “*Temporis partus maximus*,” was really the first sketch of it, more than twenty years elapsed

* The “*Advancement of Learning*.”—J. O.

before the programme of the "Organum" appeared in the "Cogitata et Visa," and it was not till after an interval of eight years that the programme was followed by the "Organum" itself. Thus the "Organum" of Bacon developed as slowly as Locke's "Essay on the Human Understanding," and with as much circumspection as Kant's "Critique of Pure Reason." Not merely the contents, but also the form in which the book is composed, required a long and thorough preparation. We have already said that the form is aphoristic, and Bacon himself in his *Encyclopædia*, when, in connection with rhetoric, he is treating of the art of scientific exposition, declares that the aphoristic form of instruction, if it is not altogether artificial, must be drawn from the very depth and marrow of the sciences, and presupposes a store of the profoundest knowledge. When Bacon wrote thus, he had, doubtless, his "Organum" in his mind, though he did not, as on other occasions, expressly cite it.

Those who have endeavoured to convey an idea of Bacon have all disregarded one point, which is important in forming a judgment respecting this philosopher; they have neglected to draw a critical comparison between his *Encyclopædia* and his "Organum." Such an inquiry would contribute

much towards the solution or explanation of those contradictions which are too readily heaped upon Bacon. The expressions of a philosopher are not to be taken and thrown together at random, but to be judged according to the *place* in which they are found. A difference as to the time when, and the purpose for which, certain works were composed, may often explain a difference of opinion. As for the Encyclopædia and the “Novum Organum,” they differ as to time, form, and tendency. The first sketch of the Encyclopædia appeared several years earlier than the first sketch of the “Organum,” and fifteen *before* the “Organum” itself; the enlarged Encyclopædia appeared two years *after* the “Organum.” In the mind of Bacon both works proceed, as it were, side by side, and there is a reciprocal relation between them; the “Organum” in many points manifestly relying on the Encyclopædia, and the Encyclopædia referring to the “Organum” as the new logic which it requires. We must here distinguish accurately between the time of conception and that of execution. Doubtless the conception of the “Organum” was in Bacon’s mind before that of the Encyclopædia; on the other hand, the execution of the “Organum” was slower and more elaborate, and therefore appeared later, than the first encyclopædical

sketch. The "Organum," in the shape in which it comes down to us, bears the purest and most distinct impress of the Baconian philosophy. The instrument which Bacon long possessed, and which, undoubtedly, he first sought, here appears sharpened and pointed to the highest degree. The whole destructive side (*pars destruens*) of the Baconian philosophy is, therefore, most conspicuous in the "Organum," — far less cloaked than in the Encyclopædia. It may also be remarked that the second form of the Encyclopædia (the nine books "De Augmentis"), in many respects (as for example, in the estimation of the mathematics), passes far more negative judgments than the first English sketch ("On the Advancement of Learning"), the later work being nearer to the "Organum" than the earlier one. Hence, we may conclude that, at the time of the first sketch of the Encyclopædia, the Baconian "Organum" was far less highly elaborated; and hence, generally, we may regard the whole Baconian philosophy in reference to the "Organum;" for it is preceded by the conception, governed by the execution, and guided by the rule, of this one work. By this principle our own exposition of Bacon is determined.

If we compare the Encyclopædia with the "Organum," we find in the two the same

Baconian mind at different periods of time, and occupied with different problems. The purpose of an Encyclopædia is to build up; a doctrine of method has to sweep away obstacles. In the former, the magazine of the human mind is to be filled; by the latter, the threshing-floor is to be swept out. In the one case the problem is material, in the other it is formal. Critics have discovered a multitude of contradictions and antinomies* in the Baconian philosophy, because he denies in one place what he has affirmed in another. Among these antinomies, many are certainly so composed that the thesis may be found in the encyclopædian works, the antithesis in the "Novum Organum." A comparative criticism would, however, easily explain these contradictions, that are not so stubborn to the quick and supple mind of Bacon, as they appear to others. He often merely tolerates what he seems to affirm. He would not always annihilate what he denies. Indeed, it may be said of the Baconian expressions generally, that they are never so unconditional and unyielding as to render all retractation impossible, whether affirmative

* The word "antinomy" has been commonly used by German philosophers since the time of Kant to denote the contradiction between two propositions, of which one affirms what the other denies.—J. O.

or negative. I cannot here enter into a very minute comparison of the two chief works, but I will, in a few words, indicate the chief points of difference. Taken altogether, the “*Novum Organum*” expresses the negative side of the Baconian philosophy more clearly and decisively than the work “*De Augmentis*.” All these negatives may be traced back to one principle; they are all results of the physical point of view which occupies the centre of the Baconian philosophy, and would hold the hegemonia in the region of science. From this point of view the Baconian philosophy opposes, in the most uncompromising manner, Aristotle, scholasticism, metaphysics, and theology. Now in the “*Novum Organum*” the physical view prevails far more exclusively, — makes itself much more prominent than in the books on the advancement of science, where it is satisfied with a single province. In these, therefore, the anti-Aristotelian and anti-scholastic tendency, as well as the opposition to religion and theology, are kept more in the background. In the work “*De Augmentis*” may be found several instances of respect for Aristotle; there is scarcely one in the “*Novum Organum*.” In the latter the assertion is frequently and always emphatically made, that physics are the foundation of all the sciences. ~~The~~ Encyclopædia, on the other hand, phy-

sical science acknowledges metaphysics as something above itself and below itself, as a foundation of all the sciences, a so-called "First Philosophy" (*philosophia prima*), of which, as of metaphysics, the "Novum Organum" scarcely says a word. The opposition between religion and philosophy is expressed clearly enough in many passages of the "Novum Organum," whereas, in the work "De Augmentis," science with all humility professes its subservience to religion. Thus within the limits of philosophy there is a so-called "natural theology," for which a certain scientific rank is claimed; whereas the "Organum" makes it the reproach of the Platonic philosophy, that it perverts science by natural theology. If Baconism were strictly a system, these contradictions and antinomies would be of more weight than they are where no system is contemplated, but merely the commencement of a new and broadly planned cultivation,—an instrument, a guide. From its genetic development, which is ever progressive, the contradictory expressions may be easily explained. Bacon's development was different from that which we are accustomed to find in German philosophers. His view gradually became not more positive, but more negative, and attained its culminating point in the "Novum Organum." At this point Bacon could

say, "I stand alone;" whereas in his encyclopædian works he departed more cautiously from the Aristotelian traditions, although the will to abandon them altogether is to be plainly seen even there. That this caution partly arose from a regard to the theologically minded king to whom Bacon dedicated his work, I will not venture to deny, for Bacon was exactly the man to be influenced by considerations of the kind. However, such explanations are at best supplementary, and of only secondary value; nay, they are not even satisfactory as far as they go, since the "*Novum Organum*" was published during the reign of the same sovereign. Bacon's French adversaries would especially like to exhibit him as a mere courtier, even in philosophy, — concealing his own views to suit those of the king. But, in spite of many contradictions, Bacon has expressed his own ideas so plainly and unreservedly that no thinking person could feel any doubt as to his intentions.

Admitting the points of difference between Bacon's two principal works, we still find that, above them both, the "*Instauratio Magna*" stands as a high point from which both may be surveyed in common. Wherever contradictions occur, they are never too absurd to admit of an explanation, never so difficult as to render the discovery

of Bacon's real thought impossible. Nor are the differences so great as to destroy the unity of his philosophy. The renovation of science;—this is the one object of his *Encyclopædia* and his “*Organum*”; and contemplating this he describes, in the latter, a new method of scientific investigation, while in the former he surveys and sorts his scientific material. He arranges the departments, connects them with each other, and points out those regions in the realm of human science which still lie fallow, and are now to be cultivated. As Columbus, by his discoveries, altered the map of the earth, so does Bacon alter the map of science, by dividing, and at the same time extending its dominion. Finding new arrangements and new problems for science, he becomes at once its geographer and discoverer. In both these innovations the principal characteristics of his mind are apparent, namely, the tendency after a complete whole, and the impulse to new discoveries, which constitutes, in fact, the real impulse of his philosophy. The tendency towards a whole seeks a science that comprises and copies the world; and with this intention Bacon seeks a *complete* division of human science, an encyclopædian outline. The impulse towards new discoveries makes him look out everywhere for the unsolved problems of science; that same impulse

that caused Columbus to *miss* a portion of the earth, and therefore carried him across the ocean, also takes possession of the mind of Bacon, and compels him to miss and discover so many portions of the *globus intellectualis*. Thus his encyclopædian outline becomes at the same time a book of *desiderata* in science.

• It is perfectly clear to us how this aspiring mind, so athirst for knowledge, first conceived the formal, and first solved the material problems among those which he had proposed. What Bacon first beheld was the material condition of the sciences, in which he missed so much; and, above all, connection, completeness, and a right disposition of parts. It is clear to him that science ought to be a copy of the real world; and, compared with this real world, the copy which Bacon saw before him in the actual science of his day was most dissimilar, fragmentary, and defective. The fragments were to be united, the gaps to be filled, and the copy of the world thus rendered complete. This task was first to be accomplished, and Bacon made the attempt in his treatise on the "Advancement of Learning." Here, indeed, a new method, a new scientific path was requisite, and this could be no other than experience conformed to nature. But Bacon had to make a practical trial of this path

himself before he could describe it, and show it to others. We can easily understand that Bacon employed his method before he revealed it, that it was his instrument before it was his object, but that this instrument was not brought to its highest degree of elaboration till Bacon made it the object of a special exhibition—which he did in the “*Novum Organum*.”

With Bacon, *missing* and *seeking* are identical. In order to find, we must seek rightly. In his *Encyclopædia*, Bacon sought for all that he missed in the actual state of science, and in the “*Novum Organum*” he described the right manner of search. What he first missed was a connection between the individual sciences; what he first sought, therefore, was science as a whole, the parts of which should be continuously connected, so that none of them should exist sundered and separate from the rest. Bacon wished to awaken life in science. Hence, above all, he had to fashion a body capable of life; that is to say, an organisation in which no part should be wanting, and all the parts of which should be properly connected. That sterility of all previous science, which had made so painful an impression on the mind of Bacon, was greatly caused by the isolated condition in which the individual sciences were placed, barred from all communication and inter-

course with each other. Combination must be as fruitful as isolation is sterile. Even a survey of the sciences advances scientific culture, and facilitates communication. A perfect division ~~shows~~ wherein science, as a whole, is yet defective, — indicates what is not yet known, and then incites the scientific mind to new achievements. Lastly, an encyclopædian arrangement brings the individual sciences into *contact*, so that they may be compared together, and rectify and fertilise each other. On this point Bacon makes a remarkable declaration: “Generally let this be a rule, that all partitions of knowledges be accepted rather for lines and veins, than for sections and separations; and that the continuance and entireness of knowledge be preserved. For the contrary hereof hath made particular sciences to become barren, shallow, and erroneous, while they have not been nourished or maintained from the common fountain.”*

Bacon's design was to have exhibited the sciences connected into one whole. His Encyclopædia is an attempted system, but to be appreciated it should be inspected by the eyes, not of a system-builder, but of an encyclopædist. The man of system will often make the correct

* “Advancement of Learning,” Book II. There is a parallel passage in “De Augmentis,” IV. 1.

objection that Bacon's divisions are not very accurate, and that the connection he would establish is often loose and arbitrary. The principle of division is new, but the rules by which it is effected are those of ordinary logic. If we distinguish the man of system from the encyclopædist, we find that the latter will be satisfied with a mere co-ordination of scientific material, while the former desires an internal connection. The encyclopædist seeks, above all, to make his materials complete, and therefore he chooses that form which most favours and ensures completeness. If this form neither is nor can be systematic, he chooses the aggregative, and no aggregative form so well ensures completeness of material as the alphabetic. Now an alphabetic encyclopædia is a dictionary, and if an encyclopædia cannot or will not be a real system, it must become a dictionary. The Baconian Encyclopædia was not a system, in the strict sense of the word, but a mere logical aggregate. Like the Baconian philosophy generally, it had no aptitude or propensity to become a system. Hence, as it progressed it became a dictionary, and the alphabetical form was substituted for the logical. The further progression is to be found first in Bayle's *Critical-historical Dictionary*, and afterwards in the French Encyclopædia of Diderot and d'Alembert.

bert, who in their *pæface* refer to Bacon, especially to his treatise on the "Advancement of Learning." The French Encyclopædia—that magazine of the so-called "enlightenment" (*Aufklärung*)—may be traced back to Bacon, not only as the founder of realistic philosophy in general, but also as the first encyclopædist of this tendency. However, the distinction between Bacon and the French encyclopædists consists not merely in the circumstance that one employs the logical form, the other the alphabetical, but likewise in the different relation in which the two parties stood with respect to science. Diderot and d'Alembert reaped where Bacon had sown. The former renovated philosophy, the latter collected what the new philosophy had produced. Bacon had chiefly to do with problems; the French encyclopædists with results; they registered the *acts* (*acta*) of philosophy, whereas Bacon had discovered in his time what was yet to be done. His books on the advancement of science were, as d'Alembert says, a "catalogue immense de ce qui reste à découvrir."

CHAP. IX.

THE BACONIAN PHILOSOPHY AS AN ENCYCLOPÆDIA OF THE SCIENCES.

THE principle according to which Bacon divides the intellectual world (*globus intellectualis*) is psychological. He distinguishes the scientific, as Plato does the political classes, according to the faculties of the human soul. As many faculties as we have to copy, and reproduce the real world, as many various images of the world as are possible to the human mind, into so many parts may the total intellectual image of the world be divided. Our faculties in this respect are memory (as a retaining perception), imagination, and reason; consequently there is a copy of the world referable to memory (or experience); an imaginary copy, and a rational copy; the purely empirical copy is History, the imaginary is Poetry, the rational is Science, in the confined sense of the word. Of poetry — which compared with history is “fiction,” compared with science a “dream” — we have already treated. History and science, the other two principal divisions referable to the world-knowing intellect,

which bear the same relation to each other that memory bears to reason, still remain to be discussed. The human mind rises from sensuous perception to rational thought; here the method and the Encyclopædia of Bacon follow the same course.

HISTORY

Contains the copy of the events of the world, collected by experience and preserved in the memory. Since the world comprises the kingdoms of nature and of man, so may the history of the world be divided into natural (*historia naturalis*) and civil history (*historia civilis*). The works of nature are either free, when they are produced by natural forces alone, or they are unfree, when they likewise depend on human industry. The free products may be either regular or anomalous; the former are called by Bacon "*generationes*," the latter "*prætergenerationes*." The artificial works of nature are mechanical. Hence natural history may be divided into the "*historia generationum, prætergenerationum*," and "*mechanica*." The last would be a history of Technology, which Bacon misses, and therefore requires, as well as a history of natural malformations. The series of regular natural

products is followed by Bacon (after the model of the ancients) from the highest down to sublunary regions. He begins with the heavenly bodies, and from them descends to meteors and atmospheric phenomena, such as winds, rain, weather, temperature, &c.; from these he descends further to earth and sea, the elements or general constituents of matter*, and finally to specific bodies.

The description of these objects may be either merely narrative or methodical. The latter is regarded even here with attentive interest by Bacon; even here he commends the inductive description of nature as the path by which the materials of natural history are brought to philosophy. "The merely narrative description is less to be esteemed than induction, which offers the first breast to philosophy."* This proposition sufficiently proves our assertion, that the notion of a new method and the wish to realise it were in Bacon's mind before his encyclopædian attempts. But a natural history so composed as to be conducive to science is the very thing that is *missed* by Bacon, and he endeavours to fill up the gap by a number of separate treatises.†

* "Allgemeine materien."—J. O. This is an abbreviated form of a proposition that occurs in "De Augmentis," II. 3.

† Comprising "Parasceve ad Historiam Naturalem et Experimentalem; Historia Ventorum; Historia Vitæ et Mortis; Thema

Human communities may be divided into state and church; the history of mankind is consequently divided into *historia ecclesiastica et civilis* — the latter in the narrow sense of the word. Between the two, however, Bacon observes a gap, which to him is, of course, a problem. There is not yet a history of literature and art. For the solution of this problem Bacon cannot, indeed, cite any example; but, by way of prescribing for the deficiency, he has written a few words, which could not be properly appreciated before the present day, as it is only of late that we have begun to supply it. His prescription is as valuable now as at the time when it was written. The mere desire for a history of literature and art, expressed by the lips of newly awakened philosophy among the innovating plans of a Bacon, is of itself surprising; still more so is the exactness with which he states how he would have his plan carried out. What is literature but a copy of the state of the world in the human mind? What, then, is the history of literature but a copy of this copy of the world? For this very reason we are surprised at the postulate in the mouth of Bacon. That realistic intellect was so exclusively directed

Coeli; De Fluxu et Refluxu Maris; Silva Silvarum, sive Historia Naturalis."

to the copy of the world, that we are astonished to find him regarding a copy of that copy as a *desideratum*. This can alone be explained from the extremely realistic view which Bacon took of human affairs. He prized literature according to its *real** worth, he remarked its real connection with human life as a whole, and wished therefore to see it exhibited as a matter of universal and political history. He regarded literature and art as the members most full of soul† throughout the entire organisation of human culture; these show the image of the world as it is reflected in the eye of the human mind. Thus, speaking of literary history, he says: "Without this the history of the world seemeth to me to be as the statue of Polyphemus with his eye out." Literature is always the mirror of its age, and in this sense forms a part of universal history. Now there is not as yet the universal history of literature; and in this sense he sets it down as a scientific *desideratum*. Respecting the separate departments of science, as mathematics, philosophy, rhetoric, &c., there are, indeed, some historical notices, but there is no tie to connect these detached and scattered fragments

* As opposed to ideal.—J. O. "Advancement of Learning," II. Also "De Augment." II. 4.

† "Seelenvoll."—J. O.

into one whole, no general historical picture of human science and art. It is not enough to know the antecedents of each science separately. There is a connection between all the literary works of an age, and also a pragmatic connection between the successive ages of a series. "The sciences," Bacon happily says, "migrate like nations."* Literary history should describe successive ages, observe epochs, pursue the course of the sciences from their first beginning to their bloom and their decadence; show how they have been first called forth, cultivated, then gradually suffered to wither, and finally animated anew. In this course the destinies of literature are closely combined with those of nations. There is a causal connection, — a reciprocal action between literary and political life, — and to this important point Bacon urgently directs the attention of the historian. Literature is to be shown in its natural character, as affected by the peculiarities of the people whose life it is to represent. Works of literature are always influenced by the climate, the natural peculiarities and dispositions, the good and evil fortunes, the moral, religious, and political condition of the people among whom they are produced. Hence the theme of literary history is the general state of literature at different

* "Migrant scientiæ non secus ac populi."—*De Aug.* II. 4.

periods, viewed in connection with that of politics and religion. In other words, Bacon regards literature as a portion of the aggregate culture of humanity; would have the history of literature and art treated as a history of cultivation.* And in what spirit, in what form does he desire that this history should be written? "The themes of history," he says, "should not be so treated that time is lost in praise and blame, after the fashion of the critics, but events themselves should be narrated just as they occurred, with a more sparing introduction of opinion. With respect to the manner of preparing such a history, we recommend above all that its matter should not be sought exclusively from historians and critics, but that through successive centuries (or shorter periods), beginning from the remotest antiquity, the principal works composed in the course of each should be consulted; and that, though these works could not be read through (for that would be an infinite labour), they should be so tasted, and their argument, style, and method should be so observed, that the genius of their age should be waked from the dead as if by some incantation."†

* Dr. Fischer refers to Gervinus's "History of German Literature," as a specimen of a history composed after this model.—J. O.

† "At hæc omnia tractari præcipimus, ut non criticorum more in laude et censura tempus teratur; sed plane historice res ipsæ

To political history also does Bacon, in the fertile spirit of his philosophy, propose new problems and prescribe new objects. History, like all science, is based upon experience; and to experience the nearest objects are particulars, the nearest field is its own intuition. Hence Bacon rightly attaches so much importance to particular histories, memoirs, and biographies, as opposed to universal histories, which, in most cases, are without the guidance of experience, and are less easily comprehensible as to subject-matter, while they are proportionably deficient in liveliness and fidelity. Most just is Bacon's remark on the subject of universal history: "If we more accurately weigh the matter, we shall find that the laws of proper history are so severe that it is hardly possible to apply them in treating of so vast an argument; so that the majesty of history is rather diminished than in-

narrentur, judicium parcius interponatur. De modo autem hujusmodi historiæ conficiendæ, illud inprimis monemus; ut materia et copia ejus non tantum ab historiis et criticis petatur, verum etiam ut per singulas annorum centurias, aut etiam minora intervalla, seriatim (ab ultima antiquitate facto principio) libri præcipui qui per ea temporis spatia conscripti sunt in consilium adhibeantur; ut ex eorum non perlectione (id enim infinitum quiddam esset) sed degustatione, et observatione argumenti, stili, methodi, Genius illius temporis Literarius veluti incantatione quadam a mortuis evocetur."—*De Augm.* II. 4.

creased by the magnitude of its material. For it will naturally happen that he who pursues such various subjects in every direction, becoming less and less scrupulous in the research, and his diligence being weakened as to details by the variety to which it is extended, will eagerly catch at popular rumour and compose history from traditions of no great authenticity, and such like flimsy material. Moreover, he will find it necessary (if he would have his work increase to an infinite extent) deliberately to pass over many things worthy of record, and frequently to fall into the manner of epitomes. There is also another danger by no means trifling, and directly opposed to the utility of history ; namely this, that whereas universal history preserves some narratives that otherwise, perchance, would perish, it frequently, for the sake of that popular compendiousness, destroys others of great profit that might otherwise have lived.”* On the other

* “Veruntamen, si quis rem rectius perpendat, animadvertet tam severas esse Historiæ Justæ leges, ut eas in tanta argumenti vastitate exercere vix liceat ; adeo ut minuatur potius historiæ majestas molis granditate, quam amplificetur. Fiet enim, ut qui tam varia undequaque persequitur, is informationis religione paulatim remissa, et diligentia sua, quæ ad tot res extenditur, in singulis elanguescente, auras populares et rumores captet ; et ex relationibus non admodum authenticis, aut hujusmodi aliqua levidensi materia, historiam conficiet. Quinetiam necesse ei erit (ne opus in immensum excreseat) plurima relatu digna consulto

hand, the biographies of important persons, special histories, such as those of the Campaign of Cyrus, the Peloponnesian War, Catiline's Conspiracy, &c., admit of a lively, true, and artistical form of narration, because the subjects are thoroughly defined and rounded off. All genuine historians, all who know what historical writing should be, will agree with Bacon. A mind that is truly and artistically historical chooses of its own accord only such subjects as it can thoroughly master and can distinctly characterise in all their parts. Universal history can only result from well-grounded special histories, just as, according to Bacon, philosophy can only result from experience, and metaphysics from physics. Great historians usually begin with monographies and special histories, the subjects of which they prefer to take from the sphere of their own immediate observation. With such thoroughly definite and comprehensible materials, the historiographer can at once display and exercise his talent. The historian and the artist are here

prætermittere, atque ad epitomarum rationes sæpius delabi. Incumbit etiam aliud periculum non parvum, atque utilitati illi Historiæ Universalis ex diametro oppositum; quemadmodum enim Universalis Historia narrationes aliquas, quæ alias forte fuissent perituræ, conservat; ita contra sæpenumero narrationes alias satis fructuosas, quæ aliter victuræ fuissent, propter grata mortalibus rerum compendia perimit."—*De Augm.* II. 8.

alike. The more indefinite and general the subject chosen by the artist, the more lifeless and ineffective is his performance. As the subject lacks natural vitality, so will the work be without poetical charm. Now within the sphere of historical life nothing is nearer to the historian than his own nation. Here he finds a source not only in a history conformable to experience, but also in his own habitual experience. Hence Bacon recommends the history of the writer's own nation as the most lively and interesting theme, and his recommendation is not only for the benefit of history, but also in conformity with his age. It corresponds to the spirit of that reformatory principle which in opposition to the middle ages, had called forth a national church, a national policy, a national literature, and had victoriously maintained those powers in England more than in any other country. Bacon chose the history of his own nation in the newly completed period of its national restoration, — the history of England from the union of the Roses under Henry VII. to the union of the kingdoms under James I.* In his history of the reign of Henry VII. he has performed the first part of the task.

Bacon would have political history as pure

* Compare "De Augment." II. 7., and "Advancement of Learning."

an exhibition of facts as literary history. As the latter should be free from perpetual criticism, so should the former from a perpetual display of political views. He points to that class of historians who write history for the sake of some particular doctrine, and are always returning to certain events in order to demonstrate their theory. They compare every fact with the doctrine that is already in their mind, and their judgment is the result of the comparison. If their heads are filled with some modern ideal of a constitution, they will pronounce judgment on Alexander and Cæsar accordingly, and inform us that these were not constitutional monarchs. We need not look far for examples. This intolerable manner of writing history is happily termed by Bacon "chewing the cud of history," which, he says, is allowable to a politician that only uses history as a voucher for his doctrines, but not to the real historian. "It is ill-timed and tiresome," he continues, "to throw in political remarks on every occasion, and thus to interrupt the thread of the narrative. For although every history of the wiser kind is, as it were, impregnated with political admonitions and precepts, nevertheless the author ought not to be his own midwife." *

* "*Historiam autem Justam ex professo scribenti politica ubique ingerere, atque per illa filum historiæ interrumpere, in-*

SCIENCE.

History occupies itself with facts, science with causes. The former, according to Bacon, crawls upon the ground, but of the fountains of science some are situated above, some beneath. For the causes of things are either supernatural or natural; the former can only be revealed, the latter must be investigated. The science of supernatural causes is revealed theology, that of natural causes is science in a peculiar and more limited sense,—or philosophy. Thus is a boundary mark set up between theology and philosophy, to which we shall afterwards return, and which we shall consider more completely.*

Philosophy, then, is the knowledge of things from natural causes. The possible objects of our knowledge, are God, nature, and our own internal essence (*Wesen*). We represent to ourselves all these objects, but each in a different way,—nature alone immediately, God through nature, and ourselves through reflection; or to use the expression of Bacon, who compares knowledge

tempestivum quiddam et molestum est. Licet enim Historia quæque prudentior politicis præceptis et monitis veluti impregnata sit, tamen scriptor ipse sibi obstetricari non debet."—*De Augm.* II. 10.

* Compare Chap. X. 1. of this work.

with sight, we perceive ourselves *radio reflexo*, nature *radio directo*, and God *radio refracto*.* Conformably to these several objects, philosophy may be divided into natural theology, natural philosophy, and anthropology in the widest sense of the word.

I. FUNDAMENTAL PHILOSOPHY.

PHILOSOPHIA PRIMA.

All the knowledge pertaining to philosophy is based upon natural causes. Every proposition embodying such knowledge is an axiom.† Now, are there not certain axioms that are common to all sciences, and are equally valid in theology, physics, and ethics? Or, what is the same thing, are there not certain attributes that may be predicated of everything that falls within the sphere of cognition, without a single exception? If there are such axioms, the sum of them manifestly constitutes a science, which, though distinguished from all the others, is not isolated, for it contains

* Compare "De Augment." III. 1.

† The original cannot be literally rendered, through the absence of a plural to the word "knowledge:" "Alle Erkenntnisse der Philosophie gründen sich auf natürlichen Ursachen. Jede Erkenntniss aus natürlichen Ursachen bildet ein Axiom."—J. O.

the principles applicable to all alike. It is consequently the foundation of the others,—Fundamental Philosophy, or, to use the words of Bacon, the “common parent” of the sciences. After the precedent of the ancients he calls it “*philosophia prima*,” adding that it is “the wisdom, which was formerly defined as the science of things divine and human.”* This science is *not* metaphysics, such as are to be found with Aristotle. Bacon has merely proposed a problem, by way of example, without any solution. A systematic solution he did not even attempt, but he regarded the science as something new, and far from being in an advanced state, not even discovered. We must ask ourselves a question, the answer to which we find nowhere: “What did Bacon intend with his Fundamental Philosophy, what did he mean by his *philosophia prima*?” He calls it the parent of all the other sciences; whereas in the “*Novum Organum*” he gives this name to natural philosophy. Here then we find most distinctly one of those prominent differences to which we have already alluded in our comparison of the *Organum* with the *Encyclopædia*. In the “*Novum Organum*” the Fundamental Philosophy is scarcely mentioned in the sense attached to it

* “*Quæ olim rerum divinarum atque humanarum scientia definiebatur.*”—*De Augm.* III. 1.

in the *Encyclopædia**, and only a slight trace is left to remind the attentive reader of the earlier notion. This is to be found in the remarkable passage in the second book, where Bacon, treating of natural analogies, touches cursorily upon the analogies between the sciences, and uses the very examples by which he previously sought to illustrate his idea of the *philosophia prima*. This fact will serve as an index to the truth. Fundamental Philosophy, in Bacon's sense of the word, is nothing but the idea of analogy applied to the sciences. Now, what are natural analogies? The first steps that lead to the unity of nature. What, in Bacon's sense, is the proposed Fundamental Philosophy? The unity of all the sciences. Bacon seeks this unity by the same method of analogy. Not on *dialectical*, but on *real* grounds, should the universal predicates of things (such as much and little, like and different, possible and impossible, essential and contingent, &c.) be determined. And here he unquestionably designates analogy as the guiding point of view. For it is only by the idea of analogy that the oppositions in nature can be reconciled, and things regarded as belonging to a graduated series. Only under the guidance of this idea, could Bacon determine the universal predicates. "There has been

* Both in the "Advancement" and "De Augmentis."—J. O.

much talk about the similar and the different, but it has not been sufficiently considered how nature combines both, always uniting different species by means of intermediate formations, such as, for instances, he introduces between plants and fishes, fishes and birds, birds and quadrupeds," &c.*

If now we consider the matter closely, and—what is necessary in all cases, especially with Bacon—compare the philosopher with himself, we arrive at the following explanation of the Fundamental Philosophy projected by Bacon. From natural causes there is in all things a harmony or a conformity, and therefore a science in which all sciences agree. From the point of view afforded by analogy the things in their infinite variety will appear as degrees of a scale. That the aggregate of things, from the humblest of creatures to the Deity himself forms a regular ascending scale,—this is the profound thought that Bacon without doubt entertained, that lay at the basis of his Fundamental Philosophy, and that impelled him to seek analogies everywhere, both in things and sciences. Had Bacon more clearly seen the import of this thought, reduced it to a principle, and pursued it to its consequences; he would have been the English Leibnitz, and not

* This is not a quotation, but a condensation of a passage that occurs in "De Augmentis," III. 1.

the antipode of Aristotle. For both Aristotle and Leibnitz regarded the world as a scale of natural formations or *entelechies*. Nor could even Bacon have wished to carry out any other thought in a science which he called the parent of the rest. It may, too, be repeatedly remarked that his opposition to Aristotle recedes more into the background, where the idea of a Fundamental Philosophy is brought prominently forward, as in the books on the advancement of science*, whereas this same opposition is most sharply prominent where the idea of analogy only takes a secondary place among the expedients of the Baconian method, as in the “*Novum Organum*.” It is therefore certain that in the mind of Bacon this idea preceded the elaboration of his method; it is certain that the same thought, which, in the *Encyclopædia*, is to originate a fundamental science, and form an axiom of axioms, was satisfied in the “*Organum*” with the subordinate part of an expedient. If Bacon says here that the analogies form the first and lowest step towards the unity of all things, what other idea could he lay at the foundation of a science which, according to his view, was to constitute the trunk of the others,—the “first philosophy?”

* That is, the “*Advancement*” and the “*De Augmentis*.”—J. O.

II. NATURAL THEOLOGY

Seeks to deduce the knowledge of God from natural causes; contemplates him through the medium of things, and thus receives but an imperfect and obscure semblance of his true essence, seeing his image broken, as we see our own when it is reflected in water. Not by the laws of nature, but only by the miracles of revelation, can God be made manifest in his true preternatural essence. Hence the true knowledge of God is not possible by natural, but only by revealed theology. Since, then, religion and faith can only be based on the true copy of God in man, it follows that they completely coincide with revealed theology, and have nothing in common with the natural. The boundary between revealed and natural theology is, with Bacon, a boundary likewise between revelation and nature, religion and philosophy, faith and science. This boundary science must never overstep, but must remain mindful of the words: "Give unto faith what is faith's;" by which Bacon once for all gets rid of every possibility of a border-war, and comes to a final settlement with faith.* Science can do

* There is a refinement in the original which can scarcely be followed in English. "Sich mit dem Glauben weniger auseinander-setzt als abfindet."—J. O.

religion no positive, but only negative service; it can neither prove nor make religion, but only prevent its opposite. Natural philosophy cannot found faith, but merely refute infidelity. So far does it extend; no further. It perceives the image of God in nature; which will suffice *against* atheism, but not *for* religion. If the boundary line between religion and philosophy is obliterated, if one encroaches on the other, both will go astray. Religion, when it dabbles with science, becomes heterodox; science, when it mixes itself up with religion, becomes fantastical, so that, on the one hand, there is a heretical religion, and, on the other, a fantastical philosophy, as inevitable consequences when faith and science, revealed and natural theology flow into each other. They should be kept apart; for every union leads to confusion on both sides. When therefore Bacon, in the first book of his work "De Augmentis," tells the king that a slight taste from the cup of philosophy may perhaps lead to atheism, but that a fuller draught will bring back to religion, certainly no such virtue lies in the cup of the *Baconian* philosophy. Indeed, Bacon himself was very far from fulfilling, in the last of his books, "De Augmentis," what he had promised by that assertion. The maxim*,

* In the "Advancement" it stands thus:—"It is an assumed

which has been quoted over and over again, may be set down among those figures of speech that always halt, and that should never be quoted in earnest, when, as in this case, they are supported by nothing deeper.

III. NATURAL PHILOSOPHY

Seeks the knowledge of things from natural causes, and an apprehension of the effective power of nature makes us capable of producing similar effects ourselves as soon as the material conditions are at our command. The knowledge of causes is called by Bacon theoretical or speculative natural philosophy; the production of effects by our own exertions, practical or operative. The former of these is the basis of the latter. The former leads from experience to axioms, the latter from axioms to inventions; the direction of the former is upwards, that of the latter downwards. In this sense Bacon calls the theoretical

birth and a conclusion of experience, that a little or superficial knowledge of philosophy may incline the mind of man to atheism; but a further proceeding therein doth bring the mind back again to religion." In "De Augmentis," thus:—"Quin potius certissimum est, atque experientia comprobatum, leves gustus in philosophia movere fortasse ad Atheismum, sed pleniores haustus ad religionem reducere." The figurative mode of expression, it will be observed, belongs to the latter only.—J. O.

natural philosophy, the ascending (*ascensoria*); the practical, the descending (*descensoria*)*

1. THEORETICAL NATURAL PHILOSOPHY

Investigates the (natural) causes of things; but these causes may be of two kinds, either blind (mechanical), efficient causes (*causæ efficientes*), or final causes (*causæ finales*). The former are referable to (natural or mechanical) causality, the latter to teleology, as their respective points of view. The former is called by Bacon, "Physique," the latter, "Metaphysique." Thus, with Bacon, physics and metaphysics do not differ as to their objects, but as to the points of view from which they are regarded. Both are natural philosophy; the objects of both are the same natural phenomena contemplated from different points of view. Physics investigate the material of things and their efficient forces, Metaphysics the forms of things and their fitness to an end.† They contemplate different sides of the same nature; the former, matter and force; the latter, form and purpose.

* Compare "De Augment." III. 3.

† "Physica est quæ inquit de efficiente et materia; metaphysica quæ de forma et fine."—*De Augm.* III. 4.

PHYSICS

Investigate bodies;—the objects of this science are inherent in matter, and therefore transitory. Nevertheless the corporeal world is a compound whole, and this whole consists of an infinite variety of individual formations. Unity and variety are therefore the two great aspects under which nature presents herself as a whole. Her unity consists of those elements that are common to ~~all~~ bodies, and in the fabric of the universe which comprises all bodies; her unity is unfolded in individuals,—in the different bodies and their peculiarities. Thus Physics are divided into three parts, containing the doctrines of elements, of the fabric of the universe, and of the various bodies. These last are again susceptible of a twofold division. They are concrete individuals that may be ranged in genera, species, &c., and at the same time we find among them certain qualities common to many or all of them, such as figure, motion, weight, warmth, light, and so on. Hence Bacon divides Physics, as the special science of bodies, into the ~~concrete~~ concrete and the abstract. Concrete physics investigate individual concrete bodies, such as plants, animals, &c.; and abstract physics the general physical qualities, such as heat, gravity, &c.

Physics, as such, form a medium between natural history and metaphysics. Concrete physics border more closely upon natural history, abstract physics upon metaphysics. Moreover, Physics is subject to the same division* as natural history, explaining the objects which the latter merely describes. Here Bacon misses, above all, the Physics of the heavenly bodies. There is only a mathematical sketch of their outward form, no physical theory of their causes and effects. We want a physical Astronomy, which Bacon, in distinction from the mathematical, calls "living" a physical Astrology, which, in distinction from superstitious Astrology, he calls "sane." By living Astronomy (*Astronomia viva*) Bacon denotes a right understanding of the grounds of the celestial phenomena, the causes of their form and motion; by sane Astrology (*Astrologia sana*), a right understanding of the effects and influences of the stars upon the earth and earthly bodies. These effects are in all cases natural, never fatalistic. The heavenly bodies do not determine the destinies of the world;—in this superstition consists the folly of Astrology, as it

* That is to say, with regard to the matters treated. "Physica autem concreta eandem subit divisionem, quam historia naturalis; ut sit vel circa Cœlestia, vel circa Meteora, vel circa globum terræ et maris."—*De Augm.* III. 4.—J. O.

has hitherto existed; — but they exercise, as in the case of the sun and moon, a physical influence upon the earth, which is manifested in change of season, the tides, &c. Such influences should be explained; we should learn what is the nature of their power, what bodies are affected by them, and how far their operation extends.

METAPHYSICS

Investigate the final causes of things, and therefore consist in a teleological interpretation of nature. Bacon likes to compare sciences with pyramids; they rise from the broad plain of history and experience to laws, which ascend higher and higher, until they reach their summit in the highest law, as the unity of the whole. Natural philosophy may be regarded under this image. Its broad base is natural history; then come physics, gradually ascending, and the summit is formed by metaphysics*, as the science of formal and final causes.

The Baconian metaphysics so far agree with the Platonic that they regard the forms of things, and so far with the Aristotelian that they give a teleological interpretation of nature; but are distinguished from both, inasmuch as they are meant

* Compare "De Augment." III. 4.; also "Advancement," II.

for nothing more than speculative physics. They are not the "fundamental philosophy." In the structure of the pyramids Bacon finds a symbol for the scale of things: "Everything ascends to unity according to a certain scale." This thought, which Bacon considers profound and excellent, even in the mouths of Parmenides and Plato, is the basis of his "fundamental philosophy," which contemplates the scale of *all* things, whereas metaphysics comprehend only that part of it that is occupied by the scale of natural things. If sciences form scales like things, metaphysics stand at the highest degree of physics.

Bacon draws a distinction between the forms and the ends of nature, and makes the explanation of them the subject of the two departments of metaphysics. By "forms" he means nothing more than permanent causes. They are efficient causes, elevated into the *form* of universality. That which produces heat, in every case, is called by Bacon the form of heat. The form of white is that which, in every case, causes bodies to appear white. Thus the forms of nature, to use the language of Bacon, are the last true differences to which the conditions of natural phenomena may be reduced; the factors absolutely necessary for the qualities of bodies. These qualities are investigated by abstract physics, which therefore

border on the region of metaphysics. To speak accurately, abstract physics necessarily merge into metaphysics; for they seek the conditions under which, in every case, physical qualities are exhibited. If these conditions are shown, physical science has abstracted from the individual bodies, and has set up a law without a material substratum; that is to say, an incorporeal form. Thus it passes into the region of metaphysics.

But, in the explanation of natural ends, the metaphysical is distinguished from the physical point of view. The distinction must, according to Bacon, be made with the utmost accuracy, and most vigorously preserved. That this distinction between the metaphysical and physical modes of interpretation was not considered before his time is, in his eyes, the first indication of scientific confusion, which, as he rightly thinks, is the same thing as scientific calamity (*philosophica calamitas*). On this account there was no genuine and fertile philosophy of nature. As science generally becomes fantastical when it is mingled with theology, so do physics become sterile and impure by a mixture with metaphysics. "The excursions of final causes," says Bacon, "into the limits of physical causes hath bred a vastness and solitude in that track."* The purification of physics con-

* "Advancement." Also "De Augmentis," III. 4.

sists in the banishment of final causes to the region of metaphysics. The teleological point of view is not to be rejected altogether, but merely restricted in its application; it is not even to be opposed to the physical point of view, but merely kept distinct from it. Neither absolutely excludes the other; indeed they are quite capable of reconciliation. That which, from one point of view, appears as the mere effect of blind powers, — why should it not, from another point, appear useful and conducive to an end? No one will deny that, in point of fact, the eyelids with their lashes serve to protect the eye; that the hides of beasts, by their firmness, act as a guard against heat and cold; that the legs serve to support the body. But every one can see that explanations of this kind are quite out of place in physics; for the physical question is not “What is the use of eyelashes?” but “Why do hairs grow on this particular spot?” “Pilosity is incident to the orifices of moisture” — such is the physical answer. Manifestly it is not the end or aim of moisture to provide an expedient for the protection of the eyes. Just as little does cold, when it contracts the pores of the skin, and then causes its hardness, purpose to protect animals against the influences of temperature. The physical explanations are very different from the teleological. But

are they therefore contradictory? Does the cause prevent its effect from being useful for some purpose foreign to the cause? Till we convert the use of the effect into its cause, no confusion arises. It is against this confusion that Bacon directs his efforts; to throw a light upon the subject, he separates (what should not have been combined) the *causa efficiens* from the *causa finalis*, the mechanical from the teleological interpretation of things, physics from metaphysics. The former show a nature conformed to laws, the latter a nature conformed to certain ends. The latter ultimately points to a fore-seeing intelligence that with wise economy guides and orders the blind operation of the natural powers; and thus metaphysics afford a prospect, the further pursuit of which is left to natural theology. Thus is natural theology based upon metaphysics, as metaphysics upon physics, and physics upon natural history.

2. PRACTICAL NATURAL PHILOSOPHY

Is divided into mechanics and natural magic. The former are practical physics, the latter practical metaphysics or the applied theory of natural forms. Bacon under this head misses both theory and practice; he mentions a natural magic, as he has already mentioned a "sane astrology," as a *desideratum*. He wished to distinguish the latter

from superstitious astrology, and in the same manner he distinguishes natural magic from the ordinary and frivolous sort, with which he classes alchemy and other dreams that have amused mankind from the earliest ages. Bacon very often speaks of the alchemists, especially when he means to give an example of the ordinary empirists with their uncritical and unmethodical way of proceeding. Without having themselves pursued a scientific object, they have paved the way to physics and chemistry by means of their researches. Bacon ingeniously compares them with those sons in the fable, whose father bequeathed them a treasure in the vineyard for which they had to seek. They dug round the vineyard without finding the gold, but by their researches they had tilled the fertile soil, and the harvest proved to be the promised treasure.

Natural magic, in Bacon's sense of the word, is the application of the knowledge of nature. Granted that we have learned the forms of nature, the qualities of bodies and their ultimate conditions, the possibility arises, as far as theory is concerned, of producing these qualities ourselves, and operating creatively like nature. If now to the theoretic is added the practical possibility—namely, material means—as the necessary vehicles of effectiveness, natural miracles, as it

were, will be the result. We need not decide (according to Bacon) whether what the alchemists sought was attainable or not; at all events their method was wrong. Before we try to make gold we must become acquainted with the natural forms of gold, and all the conditions upon which these qualities infallibly appear. The triumphs of mechanical and chemical invention in our own times accomplish and at the same time explain the problems which Bacon conceived under the name of natural magic, and recommended to the future. "When magic," says Bacon, "is combined with science, this natural magic will accomplish deeds that will bear to the earlier superstitious experiments the same relation that the real acts of Cæsar bear to the imaginary exploits of King Arthur; that is to say, they will be as deeds to tales, where more is done by the former than dreamed in the latter." *

As aids to inventive natural science, Bacon desires a history of human discoveries, which shall render especially prominent all that has appeared impossible to man; and also, for convenient survey, a list of useful experiments (*catalogus polychrestorum*).

* This passage is not to be found in Bacon as it stands here, but it is formed from expressions in "De Augmentis," III. 5., which also occur in the "Advancement."—J. O.

3. MATHEMATICS,

With Bacon, do not form an independent but a supplementary science ; they are an aid to natural philosophy. Pure mathematics consist of geometry and arithmetic, the knowledge of figures and numbers, of continuous and discrete quantities, — in a word, they are the knowledge of nature or of abstract quantity. But quantity is among the forms of nature ; therefore mathematics (in Bacon's sense of the word) belong to the knowledge of natural forms, that is, to metaphysics. Their scientific value lies in their contribution to the interpretation of nature. Their position is similar to that which Bacon assigns to logic. Both are subordinate to natural philosophy, from which both have unjustifiably separated themselves, so as to assume an independent rank of their own. Both, therefore, must be so connected anew with the physical sciences as to become mere aids to the latter. Thus we have a striking illustration of the difference between the Baconian and the Greek mode of thought. The forms of the Platonic metaphysics were ideals or antitypes, those of the Baconian metaphysics are powers. Plato considered mathematics the portico of metaphysics ;

Bacon regarded them as a mere aid and appendix.

IV. ANTHROPOLOGY,

As the science of man, in the more extended sense of the word, embraces everything human. It treats of human nature and human society, whence it may be divided into psychology and politics. Before it enters upon the separate divisions of human nature, it regards their undivided unity from two points of view.

In the first place it estimates the condition of humanity, with respect to its dignity and indignity, its greatness and its wretchedness, its bright and shadowy sides. A description of the latter is not set down by Bacon among his *desiderata* ; on the contrary, he finds that human misery is sufficiently illustrated by a copious literature of philosophical and theological writings, and, as it seems, has no desire to increase such “sweet and wholesome” * recreation. He would rather, like Hiero (according to Pindar) pluck the blossoms of human virtue, and introduce the science of man with a description of what is great in humanity, confirmed by examples from history. He would decorate the porch of anthropology with statues

* “Res et dulcis simul et salubris.”—*De Augm.* IV. 1., p. 581.

of the "summities" of the human race. Every great deed effected by the power of the human mind and the human will, as manifested in the heroes of every time and tendency, should here be brought before us by abundant examples.

The second point of view, which is more intimately connected with anthropology, refers to the unity of the human individual, to the relation between the soul and the body, as a consequence of which the soul expresses itself by means of the body, while the body reacts by impressions upon the soul. With reference to the body, considered as an expression of the soul, Bacon here gives the idea of a physiognomy — a science that, towards the end of the following century, was elaborated in such a surprising manner by Lavater. Bacon approximates closely to Lavater's system. He desires a new physiognomy, based upon real facts and observations, without chiromantic dreams or anything of the sort. Aristotle's notion of physiognomy was very imperfect. Not only are the peculiarities of the soul expressed in the fixed lineaments of the body, but still more are the inclinations and passions expressed by the gestures, by the movable parts of the human face, especially the mouth. Thus expressions that have become habitual and permanent in the countenance furnish

the plainest index of the soul and its inclinations, being, as it were, the involuntary language of the soul. This language, according to Bacon, it is the office of true physiognomy to decipher and to solve. In dreams, too, Bacon discovered a secret correspondence between the soul and the body; he despises the pretensions of ordinary interpreters of dreams, but he shows how certain states of the body to certain dreams, and *vice versa*.*

1. PHYSIOLOGY,

Applied to human life, appears to Bacon less a science than an art, the object of which is corporeal well-being, with respect to health, beauty, strength, and enjoyment. This technical or practical science of the human body may be divided accordingly into medicine, "cosmetique," "athletique," and "art voluptuary." Among the means of producing sensual gratification Bacon enumerates the arts that delight the eye and the ear, as painting and music.* This view of the fine arts was as unsatisfactory and unexalted as his view of poetry; and the æsthetical theories that followed in the same direction merely elaborated the view, so as to render it clear and better defined, but scarcely elevated it at all.

* "De Augmentis," IV. 1., p. 584.

Bacon is chiefly interested about medicine, as the science that most contributes or ought to contribute to the corporeal benefit of man. He sees plainly enough that the sister of this useful science is quackery, just as Circe was the sister of Æsculapius. From this relationship he would free medicine. With respect to all the sciences he reflects how they are to be purified from their vain and superstitious dross, and by the removal of the morbid material be rendered intellectually sound. This was his purpose in the cases of astrology, magic, and physiology, and now he has the same design with regard to medicine. This science should preserve health, heal sickness, lengthen life, and is therefore to be divided into diætetics, pathology, and macrobiotics. To the last, which he misses among the medical sciences of his day, he attaches the greatest importance, proposing the problem which, among the Germans, Hufeland endeavoured to solve. For the advancement of pathology Bacon desires an accurate history of diseases, comparative anatomy, and — in the interests of science — vivisection. It seems to him a great mark of over-precipitancy and carelessness that science has, without further inquiry, pronounced so many diseases incurable. If death is not to be prevented, physicians should nevertheless take pains to render it easier. The allevia-

tion of the pains of death, that gentle decease, which Bacon styles our "external euthanasia,"* is proposed by him as a special problem for medical science.

2. PSYCHOLOGY

Refers to the human soul considered apart, and is occupied with its nature and powers. Bacon distinguishes the soul, with respect to its substances, into the sensible and rational. The former is naturally produced, the latter supernaturally inspired, imparted to man from without by the Divine breath. In a similar manner Aristotle made a distinction between the passive and active intellect (*νοῦς παθητικός* and *ποιητικός*), making the latter enter from without (*ἑνθάθεν*) into man. Hence, with Bacon, the mind cannot be explained on natural grounds, and consequently the science of the mind does not belong to psychology, but to theology, which, through revelation, apprehends supernatural causes. Bacon himself makes an admission, which is of the highest importance to those who would form a judgment of his philosophy; namely, that it is incapable of explaining the mind. We may add that this incapability, which is here rightly attributed to

* "Euthanasia exterior."—*De Augm.* IV. 1., p. 595.

the Baconian philosophy, may be extended to realistic philosophy in general. Bacon does not deny the mind.* To deny the mind dogmatically, Bacon had too much mind himself, and too little self-denial. But, in a few words, he declares that the mind is incomprehensible; he transfers the idea of mind from the sphere of science into that of religion, with which science holds no communication; he makes between the sensible and rational soul a *hiatus*, which, by his own avowal, he is compelled to make. Thus with Bacon the mind is an inexplicable, and the soul† is a corporeal substance, which has its local seat in the brain, and is only invisible on account of its subtlety; the mind is referred to the Deity, the soul to the body. Thus, as far as spirit (or mind) and body — the Deity and the world — are concerned, Bacon entertains a dualism similar to that of Descartes. But science, which is ever impelled to search for explanations, and everywhere endeavours to find the connection and unity of phenomena, instinctively resists dualism in whatever shape it may appear. Hence the following philosophy, which was

* i.e., as a spiritual substance. — J. O.

† The words "mind" (*geist*) and "soul" (*seele*) are here used as equivalents for the "*Anima rationalis*" and "*Anima irrationalis*" of Bacon. — J. O.

based upon Bacon, sought to get rid of that dualism which Bacon had bequeathed. To remain true to the principles of Bacon, and to avoid dualism in the interests of realistic thought, it was necessary either to deny the existence of that mind that could not be explained, or — what is the same thing — to declare that it was a corporeal substance together with the soul. Thus the Baconian philosophy, as soon as it revolted against its original dualism, necessarily took a direction towards materialism, analogous to the movement of Cartesianism towards Spinozism. Even Locke admitted that the mind was *perhaps* a corporeal substance; and others, who followed him (especially in France), made of that “perhaps” an exclusive dogma. As soon as the Baconian philosophy resigned itself to the limits of a narrow dogmatic system, and, for the sake of consistency, contracted its sphere of vision, it necessarily hastened nearer to materialism at every step. As the Cartesian philosophy, when it abandons its dualism, is compelled to become pantheistic, so, with equal necessity, does the Baconian philosophy, when it abandons its dualism become materialistic.

The Baconian philosophy investigates the faculties of the sensible soul, and divides its functions into voluntary motion and sensation. But Bacon

distinguishes the faculty of sense from that of perception, which he ascribes to all bodies, and which is a ~~re-similitudo~~ ^{re-similitudo} to the soul, and inherent in every nature. Bacon is manifestly thinking of the analogy ~~between~~ between the animate and inanimate phenomena of nature, when he regards perception as a faculty everywhere present as distinguished from psychic sensation. On no other occasion does Bacon seem to speak so much in the spirit of Leibnitz. For Leibnitz has placed the analogy of all beings,—that fundamental thought of his philosophy,—in the “*Principium Perceptivum*,” and distinguished this omnipresent power of perception from sensation and consciousness. However, Leibnitz’s idea of perception is much more elaborated and more thoroughly carried out than Bacon’s. Leibnitz referred to that energy directed towards a certain end* (and therefore including the faculty of representation), which is inherent in every individuality, while Bacon by the word “*perceptio*” merely meant what is left of perception after the deduction of sensation—that is to say, mere receptivity — that disposition of a body that renders it

* This long periphrasis represents “*Zweckthätige Kraft*.” Though the teleological view of science is eminently popular in England, our language is strangely deficient in words having reference to final causes.—J. O.

capable of definite impressions, the peculiar faculty of attraction and repulsion. A perception of this kind is found, for example, in the magnet that attracts the iron, in the flame that darts toward the naphtha, in the air that is to a far higher degree susceptible of warmth and cold than the human organisation, in chemical affinities, &c. To all these peculiar utterances of body Bacon saw analogies in the phenomena of life, and therefore he designated their receptivity as a species of perception. His intuitive view of nature was more lively than his philosophy and the physical ideas belonging to it. The tendency of the latter was rather to give a mechanical explanation of the living than to perceive powers either living or resembling life in the mechanical phenomena of nature. In Bacon's intuitive views it is obvious that his mind does not rigidly follow the course prescribed by the compass of his method, but declines in another and an earlier direction, which had for him an involuntary power of attraction. This direction was that of the Italian philosophy of nature, which had revived hylozoism, — the living view of nature taken by the Greeks. In the idea of an eternally living matter, the Italian philosophers, as Bacon thought, came into contact with the Greeks — Telesius with Parme-

nides and Democritus. Here also Bacon himself was in contact with the physical spirit of his immediate predecessors. Everywhere open to the future, his philosophy was not entirely closed against the past. In some passages the natural philosophy of the Italians shines with its poetical twilight into that of Bacon; and an accurate knowledge of the relation of Bacon to his Italian predecessors would amply repay a special investigation. But for this purpose the point of view must be taken *within* the sphere of the Italian natural philosophy, upon which we cannot enlarge here. We content ourselves with the cursory remark that a congenial description of the transition period between the scholastic age and modern times is yet a *desideratum*. What has hitherto been written on this subject scarcely reaches the surface of the matter.

The faculties of the human soul are the understanding and the will, with their different species. Would we know the use and objects of these faculties, our instructor with regard to the understanding is logic,—with regard to the will, ethics. Logic and ethics are therefore branches of psychology.*

* De Augment. Scient. IV. 3.

3. LOGIC,

As the science that teaches the right use of the understanding, has as many parts* as the understanding has functions. Its office is so to understand and represent things, that they become intelligible to others. We learn to understand things when we discern what is previously unknown, retain and judge what is known. Thus invention, judgment, retention, and "tradition" are the functions of the understanding, and into so many parts is logic divided. Invention and judgment belong to the understanding, properly so called, retention to the memory, "tradition" to discourse oral and written. The art of thinking — that is, of inventing and judging — is logic, properly so called; the art of memory is termed mnemonics, the art of discourse rhetoric.

The inventive understanding is the proper organ of science. On the right use of this faculty rests all the weal, and on its neglect all the woe, of science. Inventive logic is, therefore, in the eyes of Bacon, the great art which he misses, and therefore places above all others among the *desiderata* of his new philosophy. Here is the point where his "Encyclopædia" and his "Novum Organum" come into the closest contact; for the "Novum Organum" is, in fact, neither more

nor less than the new logic, which is here mentioned as a *desideratum*. Invention presupposes experience or induction, but the experience which had been in vogue till Bacon's time, and which he calls dialectical, was unfitted for this purpose, inasmuch as it neither investigated things thoroughly, nor carefully noted negative instances. Experimental experience is alone fruitful, and this is twofold; either it confines itself to experimental details, or it ascends from the experiment to general laws. In the former case he calls it "*Experientia literata*;" in the latter, "*Interpretatio naturæ*." The "*Experientia literata*" consists in this:—that a number of experiments are made, that every one of them is varied in every possible way, sometimes with additions, sometimes with omissions; and that, in the case of every modification, the new results are observed and described. Such a mode of experience is neither regular in its course, nor is it directed to any definite end; it takes various directions, and everywhere searches out natural phenomena like a hunter in pursuit of game, not like a scientific investigator engaged in the deduction of general laws. This searching and describing experience is therefore termed by Bacon the "hunt of Pan;" the other kind, which makes use of experiments for the disco-

very of laws, he terms the "*Interpretatio naturæ*." And this latter kind he thinks he has set forth in his "*Novum Organum*."

The form of the judging understanding is either induction or syllogism. The inductive judgment belongs to inventive logic, syllogism is the form of proof. Syllogistic science comprises the arts of proving and refuting; of which the former teaches the correct form of argument, the latter the means to be employed against sophistry. The first part of scientific art consists of "*Analytics*," the other treats of "*Elenchi*." Under the latter head Bacon includes false proofs or sophisms — ambiguous definitions — and the fallacies or idols, the refutation of which is the first problem of the "*Novum Organum*."

Mnemonic art is the discipline of the memory. To retain transient notions, certain points must be found of which the memory can, as it were, lay hold, and the discovery of these is the object of this particular art. To discern such artificial means we have only to observe what means we involuntarily apply to strengthen and retain the impressions we have received. We write down the matter in question, and thus fix it in space for our external contemplation, placing it before our eyes in a tabular form easy of survey, and so endowing it with visible shape. Such an image

is well fitted to make an impression on the memory, and to guide the understanding.* Conformably to this natural point of view he treats mnemonic art. He would assist the memory by means of the imagination, or — what is the same thing — he would convert notions into emblems, and in this shape consign them to the memory, in the same manner as, according to his view, the wisdom of the ancients was impressed upon the ordinary understanding by means of myths and parables, — that is to say, of emblems; he would consign intellectual notions generally to the memory in the shape of sensible images. But images belong to the imagination, not to the memory, which only retains notions in the abstract symbols of words and numbers. If, for instance, as Bacon suggests, we endeavour to retain the notion of invention by connecting it with the image of a hunter, or that of order by means of the figure of an apothecary arranging his boxes, these notions are presented not through the memory, but through the imagination. In

* A passage occurs here, which, as it can be intelligible to German readers only, referring, as it does, to a German idiom, I have omitted from the text. It is as follows:—"Wir sagen sehr gut vom Gedächtnisse, dass es die Dinge *auswendig* wisse, d. h. es besitzt die Begriffe in Zeichen, denn das Zeichen ist der *auswendige* (äusserlich gemachte) Begriff." As the English equivalent to "auswendig wissen" is "to know *by heart*," translation is impossible.—J. O.

a similar manner mnemonic art was cultivated by the ancients, and also in the last century by Kästner.

The objects of rhetoric are merely indicated by Bacon, who points out the structure of discourse, the science of language and comparative grammar, the method of teaching, and the art of speaking. Its appendices are criticism and pedagogy.*

4. ETHICS

Treat of the human will, as logic of the human thought, and from the same practical point of view. If the latter taught the art of judgment and invention, the former teach the art of action. Ancient ethics regarded the object of action more than action itself, teaching what was good, and in what the highest good and human happiness consist; but less explaining how an action is good, and how by a good action happiness is attained. In this kind of ethics there was more of rhetoric than of moral instruction, and it was of no more use than a writing-master who sets us copies, but does not guide our hand or teach us how to imitate them. The Baconian ethics are to stand in the same relation to those that preceded, as an able teacher of writing to

* For the subjects of the above section compare De Augm. Scient. V., VI.

a mere calligrapher. Their object is practical utility,—the good, in the practical sense of the word. This practical moral doctrine will not, indeed, appear nearly so dazzling and so sublime as the preceding moral systems, with their high-flying reflections on the highest good and the highest happiness, but it will be much more useful, and approximate more closely to human nature; for it will treat of the materials of human action, and penetrate them as corporeal matter is penetrated by physics. Here Bacon makes the noble confession, that in what he leaves to posterity he will purposely disregard the lustre of his name and of his knowledge, and contemplate the good of humanity alone. The useful should be conjoined with the sublime, just as Virgil* not only describes the deeds of Æneas, but inculcates the precepts of agriculture. True science must be able to say with Demosthenes: “If you do these things you will not merely praise the orator, but yourselves also through the speedy improvement of your affairs.”†

What is good? Let us be content to give a

* Bacon illustrates this remark with the quotation—

“Nec sum animi dubius, verbis ea vincere magnum
Quàm sit, et angustis hunc addere rebus honorem.”

Georg. III. 289.—J. O.

† At the conclusion of the Second Olynthiac.—J. O.

relative answer to this question. That is good which is useful to man,—both to individuals and to humanity in general. There is an individual and a common good. That which benefits society is generally useful, and on this Bacon lays especial stress. Inasmuch as the whole is greater than a part, and society more powerful than an individual, ~~the~~ generally useful deserves the preference above individual interests. In Bacon's opinion the Greek philosophers, more particularly Aristotle, did not sufficiently appreciate the worth of general utility, and therefore placed theoretical above practical life. A life devoted to the common welfare must be practical, and so direct all its theoretical efforts as to make them generally useful. Action of general utility is the highest of human duties, which, according to the different spheres of life to which they belong, and the extent of them, may be divided into universal and particular. To the latter belong the duties of one's office or vocation, those connected with family, friendship, &c. From this diversity of duties cases of collision or opposition may arise, which Bacon would solve by making the particular subordinate to the general duty; so that in all cases the final decision may be given by the generally useful. Virtue consists of the exercise of duty, for which

the soul should be fitted, and it is this training of the soul that is the true purpose of ethics.

But to effect this purpose, one thing, in which moral science has hitherto been deficient, is requisite—a practical knowledge of man. We cannot render man moral at a single blow, by rhetorical exhortation and diffuse praises of virtue, nor can we make every ~~one~~ moral in the same manner. The ethical teacher must make himself acquainted with mankind, and study the peculiarities of the soul as carefully as physicians study those of the body. Neither in morals nor in medicine is there any panacea. The landowner ought to know the different qualities of the soil, inasmuch as it is impossible to plant everything everywhere; and, in like manner, the physician ought to be informed of the different constitutions of the human body, which are as many, and as various as the individuals themselves; and the ethical teacher must learn the different mental qualities, which are just as numerous as bodily constitutions. In the ethics hitherto taught Bacon misses this foundation of practical knowledge, without which moral science is vague and sterile, composed of mere abstract principles, and suited to—not a real but—an abstract man. Such ethics produce idols, that are only fitted for idols. They apply their remedies to all persons

alike, without distinguishing their peculiarities, and are therefore guilty of the same quackery as those physicians who prescribe the same drugs for all their patients, whatever difference of constitution may exist among them.*

Ethical science cannot make men of a nature different from that of which they are made already, any more than physical science can make nature or alter the elementary matter of bodies. Physics require a knowledge of nature, ethics a knowledge of mankind. Physics, on the basis of a knowledge of nature, seek the means of making new inventions and of advancing the physical welfare of mankind; ethics, on the basis of a knowledge of mankind, seek to promote moral welfare and to cultivate virtue in the sense of general utility. Ethics, therefore, may be divided into the doctrine of characters, and the doctrine of remedies or moral expedients. Ethical science may make a choice among the latter, but men and their peculiarities are given to it as objects of contemplation and study. In every individual specimen of humanity there is an original disposition (*Gemüthsart*) or tendency of the will, and certain motive powers that impel the will, and (to make use of a Baconian expression) are to the human mind what tempests are to the sea. The original

* Compare *De Augm. Scient.* VII. 3.

disposition is called by Bacon the "character;" the motive powers that act like storms upon the soul, are the passions and affections. To learn mankind is to study the characters and passions of men. Here Bacon takes the same view of ethics that Shakspeare takes of dramatic poetry. That we may become acquainted with human character Bacon directs us to the source from which Shakspeare has derived his dramas — to the historians and the poets, especially the Roman, one of whom he especially upholds as the greatest of all historians and describers of character, namely, Tacitus, as represented by his description of Tiberius, Claudius, and Nero.

Every human character is a product of the internal natural foundation and of external circumstances, and there is as great a diversity among characters as there is variety in their factors. Every individual is *sui generis*. The passions stir the soul and drive it out of the routine of generally useful and temperate action. Here is presented that great spectacle of human vicissitudes which is grasped by the imagination of the dramatic poet, and which no one has more deeply studied or more faithfully represented than Shakspeare. Here, too, does ethical science find its practical task. It should bring passions so under the dominion of reason that they may

not go astray; and this task is accomplished by restraining the passions and reducing them to a condition of natural equilibrium, in which they operate as checks upon each other. Like a cautious physician it seeks to approach nature by a natural path, opposing the unfettered with a restraining force, and, as it were, the first with a second nature. This second nature is custom (*consuetudo*), the power of which, in opposition to the opinion of Aristotle, is especially extolled by Bacon. The most potent moral remedy is to be found in custom. To attain a natural equilibrium the soul should incline to the side that is adverse to its ruling passions, and pursue this tendency till it has become a habit. Thus a crooked stick, if bent with caution, will become straight.

The moral state contemplated by Bacon is to be found, as with Aristotle, in the medium or point of indifference between opposite passions. It is mental calmness reduced to a habit, an acquired indifference to the power of the affections.* This ethical state appears to be a copy of Bacon's own moral disposition, which did not require to be weaned from violent passions, but had received at first from the hand of nature that equilibrium

* Of course this word is to be understood rather in the sense of the Latin "affectus" than according to its conventional acceptation. — J. O.

which most persons can only acquire by force of habit. It is, however, obvious enough that the Baconian ethics are sketched altogether in the spirit of modern philosophy, contemplating mankind as the Baconian professor of physical science contemplates natural bodies. They are based upon knowledge of mankind, which is wholly derived from the observation of individuals, attained by experience and confirmed by induction.

5. POLITICS.

Are ethics applied to state affairs. If ethics, strictly so called, teach the art of morally cultivating mankind, political science teaches that of guiding the state or the multitude to ends of general utility. It is, in fact, the art of government. Bacon considers the task of politics lighter than that of ethics, inasmuch as it is harder to lead an individual than a multitude. Herein he agrees with Cato, the censor*, who used to say of the Romans, that they were like sheep, of which a whole flock can more easily be driven than a single one; for, if only a few are brought into the right path, the rest will follow of their own accord. Prudence is in politics what virtue is in ethics. However, Bacon refrains inten-

* Vide "Plutarch."—J. O.

tionally from conducting us into the arcana of political art, and even declares to us, at the beginning of his first chapter on this subject*, that he has overlooked one art, which he will now show by his own example; and that is the art of silence. Here he follows the precedent of Cicero, who once wrote to Atticus — “On this occasion I have borrowed somewhat of your eloquence, for I have kept silent.”† Nay, it becomes *him* especially, as a statesman high in office, to be silent on political affairs. This declaration proves that Bacon does not regard politics with the eye of a *savant*, as a doctrine to be taught, but contemplates it with the eye of a statesman, as a practical art that must adapt itself to circumstances. He only teaches it externally. In his doctrine concerning prudence in ordinary affairs (*Prudentia Negotiandi*), and in what he says respecting the extension of dominion (*De Proferendis Finibus Imperii*), he teaches the policy of every-day life, and the means of extending the national power.‡ From these few remarks we plainly see that his political models were the Romans and Macchiavelli. With respect to the latter Bacon was of opinion that he was the first among the moderns

* De Augm. Scient. VIII. 1.

† “Hoc loco ego sumsi quiddam de tua eloquentia, nam tacui.”— *Epist. ad Att.* xiii. 42.

‡ Compare De Augm. Scient. VIII. 3.

who had once more begun to think and to write politically. However he himself did not wish to exhibit politics as they appear on the eminence contemplated by the statesman, but as they appear on the broad plain of ordinary life; he did not wish to show how the king and the statesman, but how everybody must be politic. Thus he treated only of prudence in politics, of the policy of all the world, not of rulers in particular. Occasionally, indeed, he made reference to the great Florentine; but, for his own part, he rather chose to interpret the Proverbs of Solomon for the behoof of every-day wisdom than to reveal the secrets of high policy and the royal art of government.

CHAP. X.

THE BACONIAN PHILOSOPHY IN ITS RELATION TO RELIGION.

PHILOSOPHY, in Bacon's sense of the word, was the knowledge of things from natural causes, which causes were distinguished by Bacon himself into efficient and final. Thus natural philosophy was divided into physics and metaphysics; the latter forming, as it were, the foundation of natural theology. For the perception of final causes in nature shows us a world regulated for certain ends, and such a world cannot be conceived without a regulating Intelligence. Now natural theology is the image of the Deity as the creative Regulator of the world, and faith in such a Deity is a scientific necessity. That disbelief which is in opposition to it—or Atheism—is scientifically impossible. "It is easier," says Bacon, "to believe the most absurd fables of the Koran, the Talmud, and the Legends, than to believe that the world was made without understanding. Hence God has wrought no miracles for the refutation of Atheism, because, to this end, his regular works in nature are sufficient."*

* Essay "On Atheism."

Thus, natural theology in the sense of Bacon, is but the faith that there is a Divine Intelligence in the world, — that the Deity is manifest in the regulated course of nature. This theology does not transcend the horizon of natural causes; the boundary of this horizon is likewise the limit of philosophy. Within this sphere nothing is known of the supernatural essence of the Deity, of His decrees for the benefit of man; consequently nothing of religion, the science of which lies beyond nature, — nothing of the kingdom of grace, the science of which must be sought in religion. Religion is based on the supernatural revelation of the Deity, and the knowledge pertaining to it consists in revealed theology. Natural theology belongs to philosophy, revealed theology to religion. As the limit of natural causes is likewise the limit of the human understanding, there is an insurmountable barrier between philosophy and religion. Hence natural theology affects no mediation, but stands altogether within the region of philosophy. It certainly affords no support to religion, according to Bacon; nay, it is doubtful how far it is itself really supported by philosophy, for passages occur in which mention is made of natural philosophy as an element foreign to philosophy. Two points therefore are established. First,

Religion — such as alone is worthy of the name — is not based upon natural knowledge; in this sense there is no such thing as natural religion. Secondly, a scientific knowledge of religious truths is impossible; in this sense there is no such thing as a philosophy of religion.* To pass from philosophy into religion, we must step out of the boat of science, in which we have circumnavigated the old and new world, into the ship of the Church, and there receive the divine revelations as positively as they are given.† Bacon has said that a drop from the cup of philosophy leads to Atheism, but a full draught to religion. By this expression he could only refer to natural religion, which in fact forms merely a section of philosophy (if, indeed, it has any firm basis at all), and has nothing to do with revelation. As for the latter, Bacon does not tell us that the boat of science takes us into the ship of the Church, but that we must get out of one and into the other, if we would participate in religious truth. As between mind and body, so is there between the Deity and the World — according to Bacon — an insoluble Dualism.

* Theology and religion are with Bacon synonymous. Hence he gives the name of natural religion to natural theology. To avoid ambiguity of expression we shall only use the word religion in the sense of revealed religion.— *Author's Note.*

† Compare "De Augm." IX.

I. THE SEPARATION BETWEEN REASON AND THE FAITH IN REVELATION.

BACON AND TERTULLIAN.

THIS Dualism establishes a separation between religion and philosophy, that excludes all inter-communication and reciprocal influence. Philosophy within the sphere of religion is infidelity; religion within the sphere of philosophy is fantastic. From the Baconian point of view religious faith can neither be self-appropriated nor believed by human reason; it will not tolerate any rational criticism, but demands a blind acceptance of the divine decrees that have been revealed. To human reason, these revelations, divine in their origin, are impenetrable mysteries. The opposition of our own will does not weaken the stringency of the divine decrees; neither does the contradiction of our reason lessen the credibility of the divine revelations. Rather, indeed, does this very contradiction confirm the divinity of their origin. We are the more bound to accept the divine revelations the less they are comprehensible by our reason; the "more the divine mystery is contrary to reason, the more must it be believed for the honour of God."* Repugnance

* Compare "De Augm." IX. 1.

to reason, far from being a "negative instance," with respect to faith, is, on the contrary, a "positive instance" — a criterion of credibility. A divine revelation must be believed, not *although*, but *because* it is, in opposition to human reason. Religious faith is not to stand behind, but beyond science, on a totally different basis; it must be unconditional, without rational ground, without logical aid, and therefore to all intents and purposes a blind faith. Thus, even in the sphere of theology, Bacon is thoroughly anti-scholastic. Scholasticism is a speculative theology, a construction of the articles of faith according to the laws of the understanding, a logical bulwark of the Church. This bulwark is destroyed by Bacon in the case both of philosophy and of religion. Philosophy must not raise it, theology must not seek to fortify itself by such expedients; and by separating the two Bacon destroys the scholastic spirit which had united them, or, if we prefer the expression, jumbled them together. Indeed, he seems to revert to the præ-scholastic faith, and to revive the maxim of Tertullian — "Credo quia absurdum." "Christ, the Son of God," said Tertullian, "died; this I believe, *because* it is repugnant to reason: he ~~was~~ buried and rose from the dead; this is certain, for it is impossible." But between Tertullian and

Bacon intervene the systems of Scholasticism, and they are as different from each other as the ages to which they belong. To the English philosopher human reason did not appear so impotent as to the Latin Father of the Church. The same expression bears one meaning in the mouth of a reformer of science, another in that of a teacher of the early Church. The declaration of Bacon in the last book, "*De Dignitate et Augmentatione Scientiarum*," has manifestly another sense from that of the same proposition when uttered by Tertullian in his treatise "*De Carne Christi*." Bacon has in the background the "*Dignitas Scientiarum*," which he has defended with so much zeal, and enriched with so many treasures. But this "*Dignitas Scientiarum*" is far from being acknowledged by Tertullian; or, we may rather say, he acknowledges the direct contrary—namely, the worthlessness of science and the impotence of human reason. Tertullian's proposition is simple; Bacon's conveys two meanings. They have one interest in common; they wish to have no rationalising faith, no intermixture of faith and reason, of religion and philosophy, of revelation and nature. For the sake of this interest both grasp the paradox which declares that, in religion, repugnance to reason increases credibility. In the relation between faith and reason only three cases

are possible, and of these one alone belongs to the purists of faith. Either faith contradicts or does not contradict reason; and, in the event of contradiction, it contradicts with or without the consent of reason. The first case is expressed by the declaration, "I believe, because it is in accordance with reason." Here faith becomes a rational dogma, for it has the testimony of reason. The second case is expressed thus: "I believe, although it is repugnant to reason." Here faith is a concession of the reason, by which it is granted, and, as it were, permitted. Here reason performs an act of self-denial for the sake of faith. It resolves to believe with a heavy heart, saying, "I believe, Lord, help thou my unbelief." From this point of view faith would greatly prefer its articles to be rational, as it would then deem them all the more credible. Lastly, the third case is expressed thus: "I believe, *because* it is impossible." Here faith not only renounces all subservience to reason, but all alliance with it, openly taking the opposite ground and allowing no objection. If, with Tertullian and Bacon, we oppose faith to reason, and make repugnance to reason a positive criterion of faith, this third case remains alone possible. No other formula can be applied by purism in faith to reason and philosophy. Nevertheless, even this formula

is involuntarily allied with reason, and herein consists the contradiction that produces its intrinsic impossibility. It is an argument of the reason; it gives a ground for faith which, although the opposite of reason, is a ground notwithstanding; it cannot get rid of the "quia," but is itself logic, while it precludes all logic! However, we will be satisfied with the good intention, and merely inquire whether the "Credo quia absurdum" is as piously meant by Bacon as by Tertullian.

Tertullian, when he made his declaration, had only one purpose in view — the purity of faith. He did not intend to confer a benefit on science, for to him science was valueless. His proposition was simple and had but one meaning. On the other hand, Bacon, by his separation of faith and reason, wished to secure the independence of *both*; he wished to preserve *both* from intermixture, intending the independence of science, no less than that of religion. Nay, we will go further. Bacon desired the independence of faith, *because* he preferred that of science; he acted more for the sake of science than for that of faith. His declaration carried with it a double meaning. It *can* be interpreted to the advantage of both faith and science, but it must be interpreted *more* to the advantage of the latter. Science was

Bacon's treasure, and where the treasure is there will the heart be also. Did not he himself call the dominion of man, based upon science, the heavenly kingdom that he would open? His interest in faith and science was divided; it had two sides; if there was a preponderance anywhere, it was undoubtedly on the side of science. And, in fact, there *was* such a preponderance. No one who has made himself acquainted with this knowledge-craving mind can doubt that its true and involuntary interest was in science alone; to science Bacon devoted the best portion of his life, while the other portion was devoted not to religion, but to state affairs. As far as his inclinations were concerned, faith was of just as much value to him as science to Tertullian. His mind was no more theological than Tertullian's was physical. Now in this two-sided position what is the relation of Bacon himself to religion?

II. BACON'S POSITION WITH REGARD TO RELIGION.

CONTRADICTION AND SOLUTION.

IN solving this difficult and much-contested question we take one fact as our guide — the harmony between the character and the philosophy of Bacon. His own relation to religion is also

that of his philosophy. If it was once resolved that religion and philosophy were to be completely separated, no other formula was left but that which Bacon adopted in common with Tertullian, and he was obliged to lay the stress of faith upon repugnance to reason. Now, from Bacon's point of view, was this separation necessary? There are three cases which express the possible relation of philosophy to religion. Philosophy, while acknowledging religion, has to explain it,—this is the first and natural problem. If it is unable to solve this problem, nothing is left but a simple assertion that religion is incomprehensible: and here two ways are possible; either philosophy must absolutely deny or absolutely acknowledge the incomprehensible object;—either overthrow it altogether or leave it utterly untouched. This is never done by scientific explanation, which at once vindicates and criticises its object.

The Baconian philosophy is incapable of explaining religion. It could neither comprehend the creative imagination in art nor the essential nature of the human mind. It is deficient in all the organs required for an apprehension of religion—that connection between the Divine and the human mind. Religion is, in every case, a relation, the two members of which are the

Deity and the mind of man. How can a relation be comprehended where there is no comprehension of its members? How can a philosophy, which admits of no knowledge except through the medium of experimentalising experience, fathom the mind either in the Divine or the human nature? To what experiment, to what mechanical investigation, is the mind revealed? With respect to this point the Baconian philosophy is aware of its own limit; it is fully conscious that within its own sphere the mind, God, and religion, are unfathomable objects. This clear and express conviction shows that the Baconian philosophy understood itself rightly in the person of its founder, and knew how to restrain experience within due limits. Thus the only choice left was between the rejection and the acknowledgment of religion, and whichever side it took, it was forced to embrace unconditionally; it could not do otherwise than either reject religion or allow it to remain just as it was. To this inevitable dilemma is the Baconian philosophy reduced through inevitable causes, and in conformity with its scientific character it decides in favour of unconditional acknowledgment. But it is difficult, if not utterly impossible, to escape from a necessary dilemma without any oscillation, and to remain immovably on one side, especially

with such a mobile philosophy as the Baconian. Once involved in the dilemma between the unconditional acknowledgment and unconditional rejection of religion, it involuntarily falls into a sort of perpendicular movement which from the positive resting-place of acknowledgment which Bacon has seized, not unfrequently oscillates in a negative direction. The contradictions that are found in Bacon's position with respect to religion are nothing but movements within the sphere of this dilemma, involuntary oscillations in a situation that is in itself dubious. If we would accurately define Bacon's position with regard to religion, we must formulise the contradiction in which it was involved. The Baconian philosophy acknowledged and affirmed the positive system of faith, while it pursued its own course in an independent extra-religious direction; it restrained an impulse to deny, but could not altogether suppress it. Why then, it may be asked, did not the Baconian philosophy express its opposition to religion without reserve, as was actually done by most of Bacon's successors? Why did it embrace the side of acknowledgment, to which it could scarcely adhere without internal repugnance and open contradiction? In the negative position it would have been more firm and more *itself*; why, then, did it choose the positive? The first

and likewise the common answer is, that Bacon, from personal considerations, yielded to the authority of religion; that, under the show of apparent acknowledgment, he concealed the anti-religious character of his philosophy; that, in a word, his position with regard to religion was hypocritical. The first answer is not always the best; in this case it is the worst that can be given, and likewise the least intelligible. It is worth while to attempt a scientific explanation of the matter before we unhesitatingly pronounce a moral condemnation. One thing is obvious, that, if Bacon's acknowledgment of religion was mere hypocrisy, he was one of the most silly and bungling of hypocrites; for, that which the cloak should have covered — namely, the discrepancy of his philosophy to religion — was plainly revealed in many places. Hypocrisy is the sign of a dishonest man; hypocritical bungling is the sign of a fool. If one of these characters can be associated with the mind of Bacon, surely we cannot say the same of the other.

1. THE THEORETICAL VIEW.

Bacon, forsooth, ought to have rejected religion, because he could not explain it! On the same grounds he would have been compelled to

deny the human mind and the existence of a Deity ; for he himself acknowledges that his philosophy is unable to explain even these. On the same grounds he would have been compelled to deny metaphysics and natural theology, for neither of them is in accordance with the strictly physical spirit of his philosophy. If Bacon would not allow final causes — the mind and the Deity — to be taken into consideration in the physical interpretation of things, was he bound therefore to deny them ? Or if he affirmed the existence of those powers which do not admit a physical explanation, was this affirmation mere hypocrisy ? If it was not, why should the term be applied to his acknowledgment of religion ?

Indeed, Bacon had in his natural, if not altogether physical, explanation of the world, sufficient grounds to acknowledge the existence of a Deity. Here he discerned final causes of which he could give no physical explanation, and of which he could make no physical use, but which on any empirical ground were just as little to be denied. Physical science explains things as the effects of blindly operating forces ; it knows of no laws but those of mechanical causality, but it cannot deny that in their effects an arrangement made for some final purpose is likewise manifest. It leaves to metaphysics the task of finding forces

that operate with a purpose for effects conformable to an end*, and to natural theology the task of tracing back these forces to an Original Power as the Creator of the universe. Bacon himself has repeatedly declared that, in his eyes, a thoroughly mechanical and atomistic philosophy of nature, like the systems of Leucippus, Democritus, and Epicurus, not only affords room for a natural theology, but even requires and confirms one more than any other system. Atomism rejects final causes from the *explanation* of nature, but does not deny that there are ends in nature itself. It is forced to acknowledge orderly arrangements in nature which could not possibly be deduced from the fortuitous motions of innumerable atoms. Rather is it compelled to recognise an Intelligent Originator of the world, to whom such arrangements are to be attributed. So natural does this assumption appear to the understanding of Bacon, that, rather than reject it, he will agree to every possible superstition. "Even that school which is most accused of atheism doth most demonstrate religion; that is the school of Leucippus, and Democritus, and Epicurus; for it is a thousand times more credible that four mutable elements and one immutable

* "Für die zweckmässigen Wirkungen die zweckthätigen Kräfte."—J. O.

“fifth essence, duly and eternally placed, need no God, than that an army of infinite small portions or seeds unplaced, should have produced this order and beauty without a Divine Marshal.”*

Thus even the natural explanation leads (through metaphysics to natural theology, and thus) to the discovery of a Divine power, that cannot be conceived destitute of intellect and will. The Divine power reveals itself in nature, the Divine will in the ordinances of religion. And the acts of this will are despotic; that is to say, without explanatory motive.† If the many natural manifestations of the Divine power transcend the explanations of human reason, how much more incomprehensible are the ordinances and decrees of the Divine will (*Willkühr*), and how much more inexplicable, therefore, is religion! But is it, therefore, less worthy of acknowledgment? If natural philosophy finds itself compelled to acknowledge the Divine power, will it venture to deny the Divine will (*Willen*) in religion? Since in the Deity there can be no contradiction between power and will, a disagreement between religion and philosophy seems, in the eyes

* Essay XVI. “Of Atheism.”

† “Aus blosser grundloser Willkühr.” I have allowed myself a somewhat violent periphrasis in dealing with this untranslatable expression.—J. O.

of Bacon, equally impossible.* At all events, natural philosophy does not bring man into contradiction with Divine revelation. "It was not that pure and immaculate natural science by virtue of which Adam bestowed on things ~~the~~ appropriate names, that gave occasion to the fall of man; but that ambitious and imperious appetite of moral science, judging of good and evil, with the intent that man might revolt from God and govern himself, was both the cause and means of temptation."†

I have thus merely proved that Bacon's theoretical point of view did not prevent him from acknowledging religion. I shall show, further, that his practical point of view prevented him from rejecting or assailing religion. Thus, by the action of both sides, his position with regard to religion is brought exactly to the level at which we find it.

* Compare "Nov. Org." I. 89.

† "Neque enim pura illa et immaculata scientia naturalis, per quam Adam nomina ex proprietate rebus imposuit, principium aut occasionem lapsui dedit. Sed ambitiosa illa et imperativa scientiæ moralis, de bono et malo dijudicantis, cupiditas, ad hoc ut Homo a Deo deficeret et sibi ipsi leges daret, ea demum ratio atque modus tentationis fuit."—*General Pref. to the Inst. Mag.*

2. THE PRACTICAL VIEW.

Let the case be supposed (which, however, was not the fact) that Bacon took a hostile position with regard to religion, and made natural truth the criterion of religious truth; what would have been the consequence? Manifestly a war with religion, a war with dogmas — that is to say, in the eyes of Bacon, a war of words; one of those useless disputations that had desolated the human mind for ages, and alienated it from a healthy contemplation of the world. Instead of augmenting science Bacon would have augmented religious controversy, and increased the poverty of science, by a new instalment. Whoever has become acquainted with the mind of Bacon must know how much he was averse from all disputations of the kind; how his whole nature was, in every way, instinctively opposed to verbal discussions. This one reason is sufficient to explain and vindicate Bacon's position with respect to religion. He would not, at any price, be a religious controversialist, and therefore, at any price, he was compelled to take a pacific position with respect to religion. He had to choose between a *faith sans phrase* and the *phrases* of controversy. Hence in his preference of the former there was no hypocrisy, since on all accounts and on every

ground he wished to avoid the latter. We draw our conclusion from the peculiar mind of Bacon; in this the necessity of his pacific position with regard to religion results from the impossibility of its opposite. Those who are so ready with the reproach of hypocrisy have not taken this into consideration. Bacon wished to avoid all border wars between faith and science; not only because they would have been hazardous and inconvenient, but because he did not see any utility, any practical advantage to be derived from such disputes. His great object was to preserve science from all useless controversies, that time, instead of being lost in them, might be gained for better and more profitable investigations. In order to attain this end, Bacon did not scruple to sacrifice somewhat of the formal authority of philosophy, which could thus the more uninterruptedly secure and extend its real dominion. Even this one consideration is sufficient to preserve Bacon's conduct from the charge of hypocrisy and dissimulation. He was not one of those systematic thinkers who are rightly censured if, in any respect, they abandon their principles. Moreover, his theoretic principles—at least, as he understood them—did not exclude religion; and he had the further principle to be practical in all cases—to have an eye to the advantage of

science under all circumstances. And he found that the interests of science were better served by keeping peace with religion than by waging war with it. This prudential course he could adopt without hypocrisy. By avoiding hostility on the one side, he obtained security on the other, and this security was necessary. The less philosophy—which Bacon sought to reform, and above all to render serviceable—the less philosophy encroached upon the region of theology, the more cautiously it confined itself within certain limits, the less reason had it to dread a hostile aggression on the other side, and the more time it acquired for its own undisturbed progress. For this purpose Bacon treated the relation of science to theology, as a sort of “foreign affair,” with practical circumspection, with politic tact, with more prudence than boldness. The inoffensive and subordinate position which Bacon took with regard to religion was not a cloak of infidelity, but an expedient for the protection of his philosophy.

Let us suppose the impossible case, that Bacon had denied and assailed religion, and had thus begun a new religious controversy; what would have been the practical result, if, indeed, there had been any such result at all? The foundation of a new religious party—of a *sect*—which would

have increased the divisions in the church. And Bacon, forsooth, should have been the man to aim at a practical result like this! A determined foe to the spirit of sectarianism, he should have encouraged that spirit! He did not wish to found a *school* even in philosophy, and yet he should have founded a sect in religion! Surely he cannot be fairly censured because he did not employ means repugnant to himself towards an equally repugnant end. The repugnant means would have been verbal disputations about dogmas, the repugnant end would have been a religious sect. For the sake of science his heart was on the side of peace. He considered his own epoch favourable for science, because after long contentions and wars a moment of peace had returned, and therefore the works of peace, to which, above all, art and science belong, could now hope for a new and flourishing era. For the sake of peace he decided unconditionally in favour of the Unity of the church, which he advocated in his celebrated essays. "Religion being the chief bond of human society, it is a happy thing when itself is well contained within the true bond of unity. The quarrels and divisions about religion were things unknown to the heathen." Again, "The fruit (of unity) towards those that are within the church is peace, which containeth

infinite blessings.”* To secure peace he favoured ecclesiastical unity, based upon the decrees of religion; and thus he less than any would attempt to peril this unity by an attack. He fully recognised the maxim, which perfectly expresses his position — “He who is not against us is with us.”

Let us suppose, further, that Bacon, by employing the repugnant means of religious controversy, had obtained the repugnant end, and established a new religious sect, what would have been the consequence? A new and zealous sectarian spirit — that is to say, a new fanaticism — that would have been the greatest impediment to the philosophical thinker. Fanaticism is blind religious zeal, and thus appeared in the eyes of Bacon as the most venomous degeneracy in religion — as a leprosy to which he openly and boldly opposed the principle of toleration.

3. THE POLITICAL VIEW.

If Bacon, for the sake of peace, avoided all religious controversy, and shunned every step that might disturb ecclesiastical unity, he could not do otherwise than require a similar pacific disposition on the side of religion and the church. For what is gained by a peaceful acknowledg-

* Essay III. “Of Unity in Religion.”

ment of the church, if the church itself desires war? Here Bacon sets a defined impassable limit to the authority of religion and the church. He would have the spirit of turbulence suppressed and restrained within the church itself. Within the church an interruption to peace arises from a blind religious zeal, which is always inclined to violent outbreaks. Its practical form is fanaticism in the cause of propagandism, its theoretical form is superstition; and to these forms Bacon respectively sets a restraining and negative limit. The practical check to that fanatical propaganda, which we may appropriately call the ecclesiastical spirit of conquest, or the passion for religious supremacy, is to be found in the state and in policy. The theoretical check to superstition is to be found in science, more especially in natural philosophy. Superstition is the internal ground of religious fanaticism, which, in its turn, is the ground of religious wars. The latter should be prevented by the state, the former by science. In the eyes of Bacon it is a false unity in religion that is based upon superstition; for superstition is ignorance, mental darkness, and "in the dark all colours are alike." And equally false is that ecclesiastical unity which seeks to extend itself by violent expedients, and in religious wars gives rise to those horrors that

have always had a tendency (and justly too) to awake a dislike to the church. To prevent these, Bacon makes the church subordinate to the secular authority, that it may never disturb civil peace or attack the power of the state, which of all human powers is the highest. It must never wield the sword of Mahomet. In a word, Bacon disarms the church in the name of the state. If religion attacks the state, "that is but to dash the first table against the second, and so to connect men as Christians, as we forget that they are men. Lucretius, the poet, when he beheld the act of Agamemnon, that could endure the sacrificing of his own daughter, exclaimed: *Tantum religio potuit suadere malorum*. What would he have said if he had known of the massacre in France, or the powder treason of England? He would have been seven times more an epicure and atheist than he was."*

Against the fanatical propagation of religion, the authority of the state opposes a secure barrier. This severe discipline and *surveillance* of the state is above all things necessary, that religion may not kindle the torch of political revolution. To this danger, which was imminent in his own age, Bacon calls especial attention. It is partly to be apprehended that religion by its affinity to

* Essay III. "Of Unity in Religion."

fanaticism, and fanaticism by its affinity to—or more correctly speaking, its accordance with—barbarism, may let loose the rabble, and array all the wilful feelings with which it is connected against the state. Thus arise religious civil wars, the most terrible of all political evils. If a reform in the church is requisite, it should be effected, not by the people, but by the state. Thus Bacon's position with respect to religion is completely in accord with the example set by the English reformation,—by the age of Henry the Eighth and Elizabeth. “As the temporal sword is to be drawn with great circumspection in cases of religion, so it is a thing monstrous to put it in the hands of the common people; let that be left to the Anabaptists and other furies. It was great blasphemy when the devil said, ‘I will ascend and be like the Highest;’ but it is greater blasphemy to personate God and bring him in saying, ‘I will descend and be like the prince of darkness;’ and what is it better, to make the cause of religion to descend to the cruel and execrable actions of murdering princes, butchery of people, and subversion of states and governments! Surely this is to bring down the Holy Ghost, instead of the likeness of a dove, in the shape of a vulture or raven, and to set out of the bark of a Christian church a flag of a bark of

pirates and assassins. Therefore it is most necessary that the church by doctrine and decree, princes by their sword, and all learnings, both Christian and moral, as by their Mercury rod, do damn and send to hell for ever those facts and opinions tending to the support of the same, as hath been already in good part done." *

Thus is Bacon's position with regard to religion most clearly indicated by himself. He carries the staff of the herald, who proclaims an armistice. He desires peace, and therefore he professes an unconditional acknowledgment of that revealed religion which is likewise adopted by the state, at the same time requiring an equally pacific disposition on the side of the church, which is no longer to wield secular power, but to leave this wholly in the hands of the state; thus removing all those means of coercion by which it oppresses consciences and disturbs peace. Every coercion of conscience attempted by the church unequivocally betrays a design to grasp secular authority. Bacon concludes his essay "Of the Unity of the Church," with the following words:—"It was a suitable observation of a wise father, and no less ingeniously composed, that those which held and persuaded pressure of consciences, were commonly interested therein themselves for their own ends."

* Essay III. "Of Unity in Religion."

4. THE NEGATIVE VIEW.

What Bacon unconditionally acknowledges is that pacific and peace-promoting religion which alone proceeds from the Deity; what he unconditionally rejects is that peace-destroying and benighted religion which is based on human superstitions. Revealed religion is opposed to the reason, but never to the good of man. This point of view, which regards practical utility, was so firmly established in Bacon, that he ever made it a standard of the Divine will. But while he is so respectful and submissive towards positive revealed religion, he is equally uncompromising and critical with regard to superstition, to which, when it expresses itself practically, he opposes the secular power as a public institution; and to which, when it expresses itself theoretically, he opposes science as a remedy. In this sense he must be understood, when he says of natural philosophy that it is the sweet medicine of superstition, and the most faithful handmaid of religion.*

Superstition, in the eyes of Bacon, is the exaggerated, degenerate, and really selfish religion, which to him appears far worse than degenerate

* "Certissima superstitionis medicina." "Religioni fidissima ancilla."—*Nov. Org.* I. 89.

philosophy. The degeneracy of philosophy is infidelity or atheism, which Bacon refutes by means of natural theology. This is opposed to infidelity, as revealed theology is opposed to superstition. If there was no choice possible beside that between atheism and superstition, Bacon would declare unconditionally in favour of atheism, because it does not appear to him so bad as the other. Whether theoretically or practically considered, superstition appears to him the more mischievous of the two; for theoretically it is an unworthy notion of the Deity, which it perverts into an idol; practically, it is dangerous to man, because it favours immorality and fanaticism, and therefore diffuses a peace-destroying venom through human society. Atheism has *no* notion of the Deity; this is better than a notion that is absurd and opposed to His true nature. It is better, he thinks, to pass over or deny the existence of a Deity, than to dishonour it by the unworthiest notions. This is done by superstition, which is, in truth, a "pasquill against the Divine Being. Plutarch sayeth well to that purpose: 'Surely,' saith he, 'I had rather a great deal men should say there was no such man at all as Plutarch, than that they should say that there was one Plutarch that would eat his children as soon as they were

born,' as the poets speak of Saturn."* Superstition tyrannises over men, produces discord among them, and corrupts all the healthy powers of the mind; nothing of the sort is done by atheism. "Atheism leaves a man to sense, to philosophy, to natural piety, to laws, to reputation; all which may be guides to an outward moral virtue, though religion were not; but superstition dismounts all these, and seeketh an absolute monarchy in the minds of men; therefore atheism did never perturb states; for it makes men wary of themselves, as looking no further; and we see the times inclined to atheism (as the time of Augustus Cæsar) were civil times."† Superstition, on the contrary, leads to political aberrations. "Superstition hath been the confusion of many states, and bringeth in a 'primum

* Essay XVII. "Of Superstition." Here is a specimen of the contradictions, of which, if we will, we may find many in the works of Bacon. He has previously said that he prefers superstition to atheism; he now says that he prefers atheism to superstition. With the former declaration he begins his discourse against atheism; with the latter his discourse against superstition. Which of the two did Bacon really prefer to the other? Let the reasons be examined which he opposes to each, and it will be found that they are more numerous and stronger against superstition than against atheism. Thus the contradiction which exists in his words is solved in his own mind. Indeed, it only exists in the eyes of superficial readers, and I should like to know an author who to such readers is without contradiction.
—*Author's Note.*

† Essay XVII. "Of Superstition."

mobile' that ravisheth all the spheres of government. The master of superstition is the people, and in all superstition wise men follow fools; and arguments are fitted to practice in a reversed order."* If we look for the causes of superstition, we shall find them to be "Pleasing and sensual rites and ceremonies; excess of outward and Pharisaical holiness; ever great reverence of tradition, which cannot but bind the church; the stratagems of prelates for their own ambition and honour; the proving too much of good intentions, which openeth the gate to conceits and novelties; the taking an aim at divine matters by human, which cannot but breed mixture of imaginations; and, lastly, barbarous times, especially joined with calamities and disasters."† We must not allow ourselves to be deceived by the similarity of superstition to religion. This very similarity renders it the more hideous. "As it addeth deformity to an ape to be like a man, so the similitude of superstition to religion makes it the more deformed." Bacon prudently adds, however: "There is a superstition in avoiding superstition, when men think to do best if they go furthest from the superstition formerly received; therefore care would be had (as it fareth in ill-purgings) the good be not taken away with

* Essay XVII. "Of Superstition."

† Ibid.

the bad, which commonly is done when the people is the reformer."

Superstition, tyrannical and selfish as it is, hates its adversary, and brands every one that opposes it with the name of atheist. How great caution must be observed in the use of this name! Atheism is "Godlessness (*Gottlosigkeit*). True atheism is that practical godlessness which, under the appearance of religion, favours selfish interests, and conduces to private advantages." Theoretical godlessness — speculative atheism — is altogether very rare. "The great atheists, indeed, are hypocrites, which are ever handling holy things, but without feeling; so as they must needs be cauterised in the end."

5. BACON'S OWN RELIGIOUS SENTIMENTS.

The religious character of Bacon is in accordance with his philosophy. Even with respect to this extremely recondite point (for a man's own religious views belong to his own heart) we can pronounce a definite judgment. He was utterly averse to superstition, as the deformed religion of human conceit, and attacked it with scientific (more particularly physical) "enlightenment;" to atheism he opposed scientific reasons, but without any feeling of animosity whatever. Revealed

religion and the church that is based upon it, he acknowledged for reasons with which his theoretical views did not interfere; while with his practical and political views they were fully in accordance. He desired to see revealed religion purified, like natural science, from all human idols. On this point he was as thoroughly anti-catholic as became a genuine follower of the age of the Reformation. He wished to adopt revealed religion without any logical form of proof; and on this point he thought antischolastically as the founder of a new philosophy. This philosophy could furnish no arguments to prove the articles of revealed religion, and Bacon's mind was exactly fitted to perceive this incapacity in his philosophy. All that it could offer to religion was a formal, unconditional acknowledgment. ~~I am willing~~ to concede that Bacon's personal position at the Court of James I., his regard for the king, and the exigencies of the time generally, together with many collateral motives, may have greatly influenced and confirmed him in the expression of this acknowledgment. With a merely formal acknowledgment it is easy to speak in any key; and Bacon sometimes employed the language of simple piety. Human authority in religion he desired to attack; Divine authority he desired unconditionally to acknowledge. It may,

indeed, be asked what Bacon assumed as the decisive test of Divine authority. If he had proposed this question to himself he would have been compelled to answer it with "the Scriptures," and thus have fallen into contradiction with some of his own scientific notions. But it belonged to the religious character of his age *not* to investigate seriously the question of Biblical authority. Bacon's formal acknowledgment of revealed religion did not *exclude* an internal acknowledgment, though I will not say that it proved one. At all events, a mind like his was too wide and comprehensive for that species of "enlightenment" which absolutely denies everything that it is unable to explain. This kind of enlightenment he left to later philosophers, who could think more narrowly, and therefore more systematically, than himself. However, the internal acknowledgment of religion, for which his intellect, occupied as it was with worldly interests, both scientific and practical, still found room, was neither a jealous nor a profound emotion. Like all his other inclinations, it was *cool*. Bacon's belief rested upon a suppressed doubt, with respect to which it maintained a constant equilibrium. His real interest was centred in the world, in nature, and in experience; religious faith was not, and never became, the treasure of his heart. For this he lacked the

childlike
 simple and ~~childish~~ mind — the fitting vessel for faith. In religion, as in everything else, he had begun with doubt, and his treatise on the “Christian Paradoxes” (1645), which belonged to an early period of his life, and did not appear till after his death, proves his theological scepticism. He knew the points of opposition between religious revelation and human reason, before he set them aside by an arbitrary decision. The religious disposition of Bacon is best characterised by negative predicates. We can distinctly say what it was *not*. It was not hypocrisy, for his acknowledgment was meant sincerely; neither was it piety, for worldly interests lay nearest to his heart, and he was naturally deficient in those qualities that constitute the essence — not to say the genius — of religion; namely, an unsophisticated readiness to believe, and a child-like need of faith. If we conceive his religious views nearer to infidelity than to superstition, and equally removed from both genuine piety and hypocrisy, we shall hit upon the right place—a cool medium, which may closely border on religious indifference, if it does not exactly correspond to it. Considered with respect to his own feelings, his acknowledgment of religion did not cost him so much as a disguise. His views on this subject did not proceed from the fulness of his heart, but

amounted to a well-considered and well-guided deportment; they were not a mask, but a dress suited to the age, which we find perfectly natural; still, strictly speaking, they were scarcely more than his garments.

III. DIVERSITY OF OPINION RESPECTING THE RELIGIOUS VIEWS OF BACON.

BACON AND DE MAISTRE.

To be understood superficially and to be judged partially is the very intelligible fate of all philosophers. One-sided judgments pronounced by an acute intellect are always suspicious; for they always regard one particular characteristic more than all the rest of a philosopher's peculiarities: and by dwelling on this especially render it especially prominent. With regard to the religious position of Bacon, the judgments that have been pronounced upon it constitute a really interesting and instructive spectacle. By taking a one-sided view of that which was two-sided in Bacon's own nature, they necessarily contradict each other to the most violent degree. All the conceivable contradictory judgments that could be pronounced on Bacon's relation to religion have been pronounced in fact, and serve to

show what contradictions Bacon combined within himself. Compared with him, their judgments are one-sided; compared with each other, they form a perfect specimen of absolute contradiction. By public opinion in England Bacon is generally regarded as a genuine Churchman; in Germany the correctness of this view is greatly doubted by those learned men who have touched upon the theme; and in France it is so utterly denied, that Bacon's views are asserted to be in direct opposition to those of the Church and religion. But even in France, where much more attention has been paid to Bacon than in Germany, voices diametrically opposed to each other have been heard, specimens of which we will cursorily compare.

I must begin by remarking that the separation between revealed religion and human reason, which had been introduced by Bacon, found its way among minds of a very different order, and served as an expression for diametrically opposite interests. In short, the Baconian formula was greedily caught up by one party as a shield for faith, by another as a shield for infidelity. On this point there is a distinction between the seventeenth and the eighteenth century. In the latter, when progressive "enlightenment" still availed itself of the Baconian formula, it was always with an anti-religious view; the formula

had become a merely formal acknowledgment, of which we may say that it excluded all internal religion, and, indeed, concealed its opposite. In this form does the Baconian principle of faith appear with Condillac, who carries the Baconian philosophy to an extreme point of exclusive and perfected sensualism. In the seventeenth century, on the other hand, we find in France the same separation between faith and reason maintained for the interests of faith. But within this positive establishment of faith a further opposition is still possible; for we have still to inquire on what grounds reason is sacrificed to revealed religion — whether this is done by piety or by scepticism? It may be the interest of piety to ~~immerse~~ immerse itself in Divine revelation, unchecked and unembarrassed by human reason. It may be the interest of the sceptical reason to sunder the knots of doubt with the sword of faith; not so much to sharpen the sword of faith as deprive reason of the power of solving its own doubts — that is, to leave reason itself in a state of doubt. Reason is, in this case, sacrificed to faith, after it has surveyed on every side and analysed with sceptical acumen the contradictions of the latter. Such a triumph of faith over reason is, in fact, the triumph of the sceptic; if doubts can only be resolved thus, they are really insoluble, and the

sceptic has gained his victory. What he truly believes in is the uncertainty of human reason; his creed is, in fact, a *disbelief* in rational truth, which he translates into a blind faith in the truth of Divine revelation. Those opposite interests with respect to faith—the religious and the sceptical—are both founded on the Baconian separation between religion and philosophy. Two of the greatest and most interesting minds of the seventeenth century maintain this separation in the interest of faith, but exhibit the diversity just described. One is the Jansenist Blaise Pascal; the other the sceptic Pierre Bayle.

When the Bacon formula had been taken up in such a one-sided manner, so as to appear now on the side of faith, now on that of infidelity, we cannot wonder that Bacon's own religious views were interpreted in a similar fashion; so that some explained them through Pascal, others through Bayle, others, again, through Condillac. "Bacon was a decided unbeliever"—such was the judgment of Condillac and his school, the Encyclopædists and their successors; Mallet, the biographer of Bacon; Cabanis, his panegyrist; Lasalle, his translator, who openly asserts that Bacon was in his heart a thorough atheist, and in his external acknowledgment of religion a

mere hypocrite and courtier.* All these persons, who are members of the same intellectual family, regard Bacon as their ancestor, and by the family analogy judge him as one of themselves. At the same time we hear, on the other side, the opposite verdict — “He was a thorough believer.” Such is the judgment of De Luc, the interpreter of the Baconian philosophy, against whom Lasalle defends the infidelity of Bacon. The Abbé Emery — the same who explained the views of Leibnitz on religion and morality — takes the same side as De Luc in his apologetic treatise on the Christianity of Bacon.†

All these views are one-sided, and, moreover, far too vague to comprehend the whole mind of Bacon. But they are all in contact with him at some point or other, though this point is *not* the centre. Among those enumerated above the nearest akin to him are Condillac and his followers, who bear to him about the same relation that the Wolfians bear to Leibnitz among the Germans. Freethinkers and believers have alike claimed Bacon as a partisan, each having looked

* Mallet's “Life of Lord Bacon” prefixed to the edition of Bacon's works, published in London, 1740. Cabanis, “Rapport du Physique et du Moral de l'Homme.” Lasalle, “Œuvres de Bacon, préface générale.”

† De Luc, “Précis de la Philosophie de Bacon.” Emery, “Christianisme de Bacon.”

exclusively to the side that is favourable to themselves. Whatever has the appearance of religious faith in Bacon is regarded by the freethinkers as empty show — a mere mask — deliberate hypocrisy. Lasalle, who calls himself “Bacon’s valet,” speaks unblushingly, like a valet, of this *partie honteuse* of his master. On the other hand, whatever has the appearance of infidelity in Bacon is regarded by his religious admirers as a mere unimportant expression, or an error, that was afterwards detected by Bacon himself and in due time laid aside. “The praise which has been heaped on Bacon by the enemies of the Christian religion,” says the Abbé Emery, “have almost brought suspicion upon his faith. But how joyfully are we surprised by his religious feeling and his pious utterances!” Thus, among believers and unbelievers has Bacon found his apologists; or, to use a modern term, his advocates to plead for him. However, to complete the group, we still want the polemic controversialist, the *advocatus diaboli*, whom, in the case of Bacon, we can only find among a certain class of persons — namely, among the fanatics. And here we really *do* find this *advocatus diaboli*; — he comes, as if he were called, in the person of Count Joseph de Maistre, through whom French literature has at last, with a hearty

good will, sought to fill up the gap caused in its Baconian documents by the absence of polemical controversy. Under the title "*Examen de la Philosophie de Bacon*,"* De Maistre has, in two volumes, attempted not merely to attack, but to annihilate Bacon. He is so far right in his thorough hostility that his point of view is diametrically opposite to that of Bacon. Nothing was so repulsive as religious fanaticism to the tolerant thinker devoted to the study of natural science. De Maistre is a *fanatic*. To no ecclesiastical theory was Bacon more opposed than to the Catholic. Our readers must have already remarked that when Bacon describes superstition, he borrows his traits from Catholicism. Now De Maistre is not only a Catholic in the Ultramontane sense of the word, but he is a jesuitical Catholic. To no scientific view was Bacon more decidedly opposed than to that of the schoolmen, by whom the theology of the middle ages was elaborated. De Maistre is an artificial schoolman, for his age prevents him from being a natural one; he is a Romanticist, one of those who attempt an artificial resuscitation of the past by means of a political restoration with mediæval institutions.

* "*Examen de la Philosophie de Bacon, où l'on traite différentes questions de la philosophie rationnelle. Œuvre posthume du Comte Joseph de Maistre. 2 vols. Paris et Lyon, 1836.*"

Therefore, passing over the Baconian philosophy, he takes his stand at a grade of cultivation that Bacon has left behind him; which is an unlucky position for the polemics of Count de Maistre, inasmuch as he only sees the back of the object he attacks, and on the strength of this aspect passes judgment upon Bacon. If we compare them with each other, we find that their points of view, not the ages in which they lived, are opposed to each other. Bacon's opposition to scholasticism was natural, necessary, decided; De Maistre's opposition to Bacon is artificial, forced, unsteady, and, because he would be most decided, he becomes, in the highest degree, violent, unjust, and irrational. Thus the crusade which the French Romanticist of the nineteenth century would preach against the English philosopher of the seventeenth is poisoned and corrupted in the outset.

What De Maistre finds most intolerable in the Baconian philosophy is the separation between philosophy and religion—science and theology—that is first introduced by Bacon. What most excites his wrath in the Baconian philosophy is the precedence given to physics, and the secondary rank conceded to moral and political science. Only the second place, he thinks, belongs to physical science; the first place belongs of right to theology, morals, and politics. Every people that does not

rigidly observe this order of precedence is in a state of decline. The Romanticist is dreaming of those ecclesiastical forefathers and schoolmen who philosophised for the benefit of the Church. He maintains, in opposition to Bacon, a similar union of religion and philosophy; nevertheless he so far forgets himself as to defend this union by arguments that do not belong to scholasticism but to "enlightenment." One can hardly believe one's own eyes, when, to prove the accordance of revelation with reason, De Maistre advances arguments that have been already employed by Lessing. He speaks of the *educational* course of Divine revelations, and of their natural fitness to the comprehensive power of the human understanding; and shows that no revelation is anything more than an earlier-communicated truth, an "enlightenment" under pedagogical auspices. Where a De Maistre should rest his defence solely on the authority of the Church, he has recourse to the rational arguments afforded by an "enlightenment" foreign to the Church. When the modern diplomatist espouses the cause of scholasticism against Bacon, he becomes a Romanticist; when he defends it as its advocate, he becomes a sophist, and shares the fate of all his party. While resting upon the authority of the Church, which has force on its side, persons of this class may triumph;

but when they have recourse to rational arguments, they inconsistently sacrifice their own principles, and are defeated to such a degree that they voluntarily surrender their weapons to the enemy. However, Bacon is by no means the sole mark for the polemics of De Maistre. In the person of Bacon, De Maistre would annihilate a whole race — a whole age — the eighteenth century, with all the representatives of the French “enlightenment.” Every blow that Bacon receives from the hands of De Maistre is intended, at the same time, for Condillac and the Encyclopædists. De Maistre’s book against Bacon is a declaration of war on the part of the French Romanticism of the nineteenth century against the French “enlightenment” of the eighteenth. “Bacon,” says De Maistre, “was the idol of the eighteenth century; he was the ancestor of Condillac, and must be judged according to his descendants — his intellectual kindred — and these were a Locke, a Hobbes, a Voltaire, a Helvetius, a Condillac, a Diderot, a D’Alembert, &c. Bacon laid down the principle of the Encyclopædists, and these in return spread abroad his fame, and elevated him to the throne of philosophy. He was the originator of that ‘Theomisia’ that filled the mind of the eighteenth century.”

Such, according to De Maistre, is the historical importance of Bacon, which is unquestionably great and extensive. The advocacy of "enlightenment" has all the more interest in reducing this character to its true value, as a whole hostile century dates from it as from a beginning. From lengthy tirades we will endeavour to bring together the characteristic traits that will show our readers the image of Bacon as it existed in the mind of De Maistre. It is a caricature unlike anything in humanity, that, instead of rendering its object detestable, makes its originator ridiculous. Fanaticism spoils every talent, even the talent for distortion, destroying the last vestige of similarity with nature, because there is nothing in common between nature and itself.

De Maistre chiefly estimates the object of his criticism from the Roman Catholic point of view, which he calls the Christian. And from this point of view, what is the aspect of Bacon? He was, says De Maistre, what the Encyclopædists called him, an infidel, a decided atheist. Nevertheless, he spoke in praise of faith, and allowed it unconditional authority. "So much the worse," says De Maistre; "he was likewise a consummate hypocrite." Here good service is done by Lasalle, who also declared that his lord and master, as he called Bacon, was an

atheist with a hypocritical mask. But where does De Maistre find the *criteria* for Bacon's infidelity and hypocrisy? Here we have a fine specimen of the keenness of De Maistre's scent in sniffing out such *criteria*. * Indeed, so keen a scent would scarcely allow any one to escape. In the twenty-ninth aphorism of the second book of his "Novum Organum," Bacon says that the uncommon phenomena of nature, monstrous births, &c., should be examined and collected, but with caution, and that those above all must be regarded with suspicion that have their source in religion, as is the case with the prodigies of Livy. De Maistre lays violent hands on this passage, in which Bacon is made to confess his atheism and hypocrisy at once. The passage cited refers to remarkable natural phenomena; — not to wonders, but to monsters (*monstra*), as, indeed, Bacon calls them. As far as these are concerned Bacon would not have implicit credit given to religious narratives, whatever they may be. "Stop!" cries De Maistre, "this is flat blasphemy! Bacon here means Christianity; — he blasphemes the true religion; — he is no Christian; — he is an atheist!" But Bacon adds, by way of example, the prodigies narrated by Livy, and further on he cites the writers on natural magic and alchemy. The Christian

miracles, which are not even included in the category, never occur to his mind. "Here," cries De Maistre, "is a hypocrite;—he means Christianity, and he cites Livy. See how the clever actor can conceal himself in a moment, by using Livy as a mask. I can say to him in the words of Madame de Sevigné, 'Gentle masque, I know you.' He says that where monsters are concerned, religious narratives are not to be believed, whatever they may be.* Thus it stands written, 'whatever they may be.' He means all, the Christian included." Because Bacon is doubtful with respect to the records of monsters, he is regarded by De Maistre as un-Christian; because he refers to Livy, he is looked upon as a hypocrite.

And what is the scientific rank of Bacon in the opinion of one who has just unmasked him as an atheist and hypocrite in religion? "He preaches science," says De Maistre, "just as his Church preaches Christianity—without a mission." Count de Maistre will permit us, in our turn, to use the expression of Madame de Sevigné with reference to himself: "Gentle masque, we know you." He

* The words in the passage referred to are—"Maxime autem habenda sunt pro suspectis, quæ procedunt quomodocunque a religione; ut prodigia Livii;" and thus De Maistre's reasoning is even more inaccurate than appears in the text.—J. O.



attacks Bacon, not merely as the intellectual progenitor of Condillac, as the idol of the eighteenth century, as the philosopher, but also as the—Protestant. A Protestant, a member of the rebellious Church, withdraws from the Mother Church the service of philosophy, undertakes the hegemony of science, and hands it over to Protestantism. This unpleasant fact is a heavy grievance to the fanatical Catholic, the romantic schoolman, the diplomatist of the restoration, and he would gladly get rid of such a stumbling-block of offence. Bacon had as much a vocation to be the reformer of science, as Protestantism to effect a reformation of the Church; which, in De Maistre's language, he had no vocation at all, but in our language denotes that he had a high vocation indeed; and to this high vocation the three centuries during which Protestantism has existed and flourished, bear ample testimony. According to the judgment of De Maistre, Bacon was not a scientific genius. Why? Because he made no discoveries himself, but only wrote on the art of making discoveries; because he was a theorist with respect to this art. We may as well reproach the writer on æsthetics for not being himself an artist. If people treating of subjects only say what they are *not*, there is no end to verbosity. The number

of infinite propositions*, as logic calls them, is itself infinite. Logic should extract specimens of these infinite propositions (which, in point of fact, are no propositions) from the works of our critics. But if Bacon was no more a scientific genius than a writer on æsthetics is an artist, what was he after all? He was, according to the decision of De Maistre, a mere *writer* † of the most frivolous and rudest kind, and, moreover, without a trace of originality; for his language abounds in Gallicisms. His love for science was an unhappy and sterile love — like the passion of a eunuch! His so-called philosophy is a spiritless materialism, uncertain and unsteady in its expression, frivolous in tone, and full of fallacies in every assertion. De Maistre will not acknowledge a single spark of truth in Bacon, but constantly repeats expressions of the profoundest contempt. We see that we are concerned with a mere maniac, who, at every word, plunges deeper and deeper into an inconsiderate and therefore ridiculous rage; and, under the name of Bacon, maltreats a bugbear that is but his own bungling handiwork; as for instance, when we read such propositions as these: — “The general impression

* *E. g.*, “Man is a non-horse.”—J. O.

† “Ein belletristischer Schriftsteller.” There is no equivalent for this expression.—J. O.

left upon me after a careful examination of Bacon, is a feeling of thorough mistrust, and, therefore, of thorough contempt. I despise him in every respect — both when he says *Yes*, and when he says *No*.” “Bacon is wrong when he affirms; wrong when he denies; wrong when he doubts; wrong, in a word, wherever error is possible to man.” And the basis of this thoroughly false and pernicious philosophy was as vain and despicable as the philosophy itself. It was nothing but a morbid love of invention, the “disease of neologism,” that seduced Bacon and the whole modern philosophy in England, France, and Germany. A mere desire to oppose the ancients gave to all the so-called systems of modern philosophy their ephemeral existence, and to the founders thereof that ephemeral fame, that Count de Maistre annihilates with the breath of his mouth. His indignant glance discovers — not without pity — the greatest and most difficult thinker of modern philosophy — the German Immanuel Kant — in the ranks of the neologists. It is amusing to find a Kant before the tribunal of a De Maistre, and still more amusing to hear the sentence pronounced upon the greatest of philosophers by the least unbiassed of judges. In the opinion of De Maistre, Kant might have been a philosopher if he had not been a charlatan.

The incomparable passage is to this effect:—"If Kant had, with all simplicity, followed a Plato, a Descartes, and a Malebranche, the world would long have ceased to talk of Locke; and France would, perchance, have become better instructed with respect to her miserable and ridiculous Condillac. Instead of this, Kant abandoned himself to that unhappy desire for innovation that will not be indebted to any one. He discoursed like an obscure oracle. He would say nothing like other people, but invented a language of his own; and not content with requiring us to learn *German* (and no slight requisition *that*), he would even compel us to learn *Kant*. And what is the result? Among his own countrymen he excited a transient fermentation, an artificial enthusiasm, a scholastic commotion, that found its limit on the right bank of the Rhine; for as soon as the interpreters of Kant ventured to cross this boundary, and attempted to palm off their stuff upon the French, the latter were unable to restrain their laughter."

I am sincerely afraid that a similar fortune will befall Count de Maistre among the countrymen of Bacon and of Kant; and, indeed, we shall laugh at him on other grounds than those on which the French laugh at Kant; we shall laugh at *his* expense, not at our own.

CHAP. XI.

THE BACONIAN PRINCIPLE OF FAITH IN ITS DEVELOPMENT.

THE motives that determine Bacon's position with respect to religion, and compel it to proceed by a compounded, and, we may say, diagonal path, are many and various. The movement is guided by springs that co-operate in very different directions. To understand the Baconian tendency in matters of faith, it is necessary to resolve it carefully into its original motives. Those who interpret it as merely positive or merely negative, do not understand it. As the whole realistic philosophy of modern times has its root in Bacon, in him also is to be found the beginning of all those relations which arise between that realism and religious faith. Bacon's religious views implicitly contain all those characteristic features that were afterwards propagated by the Anglo-Gallic "enlightenment" (*Aufklärung*). His natural theology implants that germ of Deism which was developed, especially in the eighteenth century, by a series of English philosophers. And, indeed, this deism

is determined, even in Bacon, as something that deviates from historical religion. Bacon, on the side of philosophy, professes for historical or revealed religion an unconditional veneration that excludes all criticism by the reason, inasmuch as, at the very outset, he admits the impossibility of arriving at positive religion by the way of philosophy, and reduces to a formula the blind subjection of reason to faith. But while thus subordinated, science is nevertheless allowed to move freely in its own region, unimpeded by religious authority. He would, therefore, place the Church under the control of the State, and deprive it of all those means by which, through its power, it might violently curb the freedom of the mind. The Church is to be respectfully acknowledged, but is not to rule. Hence Bacon desires the destruction of religious supremacy and the establishment of religious toleration ; and zeal against the former, and in favour of the latter, was ever manifested by the "enlightened" in England and France, however various the positions they might take with respect to historical religion. Bacon, not Hobbes, was the first to insist that the sword of the Church should be taken out of the hands of the priests, and placed in those of the State. Bacon, not Locke, was the first to give emphatic expression to the principle of toleration, and

to demand its establishment for the interests of science.

But from the Baconian point of view may be deduced, not only deism and the principle of toleration, but also that decided infidelity which succeeded the introduction of his philosophy in England, and, more particularly, in France. Infidelity, atheism, and the general negation of the religious element is, indeed, the perpetual expression of philosophical materialism. Indeed, between materialism and atheism there is always a logical connection. In Bacon himself, a tendency to materialism is as apparent as it is explicable, being only concealed, and, as it were, built over by the metaphysics on which Natural Theology — that first beginning of Deism — is based. The mind of Bacon lived in physics; his purely physical interpretation of things was, in its very principle, mechanical, and, therefore, materialistic. From the physical point of view he opposed superstition; and when he had to choose between superstition and atheism, he gave every possible reason for a preference of the latter. This predilection for atheism is consistent; a consequence of his inclination to materialism. When, therefore, philosophy drops her formal acknowledgment of positive religion, and, so far, extends her physical interpretation of

things as to do away with metaphysics and natural theology, it will no longer be satisfied with preferring atheism to superstition, but openly set up the former in the place of religion.

If we now compare religion and philosophy as they appeared to Bacon, we are struck by the logical incompatibility of the one with the other; and to render the contradiction clear, we must accurately define Bacon's conceptions of them both. Higher or even different conceptions were never attained during the whole of the so-called "enlightenment" that followed him. Religion, in Bacon's sense of the word, is a divine (or supernatural) revelation; philosophy, in Bacon's sense of the word, is the interpretation of nature. The foundation of the divine revelation is, according to Bacon, a divine arbitrary will, by which all necessity is excluded; the natural foundation of things is mechanical necessity, which excludes all operation by final causes, and, *à fortiori*, everything like an arbitrary will. Thus philosophy knows nothing of uncontrolled will, and religion nothing of necessity. A mere arbitrary will is without a cause, and therefore incomprehensible. Therefore, if Bacon could not find another foundation for religion than such a will, he was quite right in declaring its incomprehensibility. If reason, when investigating religion, can only dis-

cern contradictions, which it is absolutely unable to solve, then Bacon was quite right in putting an end to so many aimless disputes, so much idle debate with reasons and counter-reasons, by silencing reason altogether, and declaring that it was his duty to acknowledge without condition the divine articles of faith. To see this, we have only to understand the grade of culture occupied by human reason within the sphere of the Baconian philosophy; the value which, on the one hand, it assigns to religion, and, on the other, to itself. Religion, according to Bacon, is a positive system of faith, composed of divine statutes, appointed by the absolute will of God without any extrinsic cause. And what is the value of reason in its own eyes? In all natural things it is experience; in all supernatural things both reason and all valid conclusions cease together with experience. Beyond the limits of experience, it is lost in empty disputations, and in sterile, interminable arguments. Considered in reference to nature, human reason is a science conformed to experience; considered with reference to religion, a mere sophist, *animal disputax*. In religion the divine will despotically rules; in the philosophy of religion, human caprice exercises an arbitrary rule by its arguments. This is Bacon's view of the subject; thus does he determine the mutual rights of religion

and reason ; and, therefore, when he makes reason subservient to religion, this simply means that he forces the human will to be silent in the presence of the divine. And granted that this is the true relation of the rights on both sides, how could he decide otherwise between them ? Reason arrives at conclusions, and for every one of them a major premiss—a rule—a law is required. The laws of nature we must *discover*, for they are concealed in the things of the natural world. The laws of religion we must *assume*, for they are revealed by God. Reason is permitted to draw conclusions from these laws, but not to alter or to test them. They are premisses established from eternity, which are employed, but not made, by reason. How Bacon understands this secondary use of reason, he tells in an incidental comparison, which very characteristically illustrates his views of religion. According to him it may be compared with a game—chess, for instance—the rules of which must not be violated or even criticised by the players ; but which nevertheless may be rationally applied, so that deductions may be made from them. The case of positive religion is similar. It is (reverentially speaking) a game*, the rules of which are established by the Divine will, and

* This singular simile occurs in "De Augment." IX., towards the end.

communicated by revelation to man. If we have to do with religion, we must not disturb her rules, but simply adopt them as they are given to us, and make no other use of our own reason than in judging according to their guidance.

I. BACON AND BAYLE.

RELIGION under the likeness of a game,—this involuntary simile on the part of Bacon really shows in a very striking manner the weak side of his religious view; for though it was quite consistent with this view, and was, no doubt, innocently intended by Bacon, it is in reality profane, and its profanity becomes more and more evident as the realistic mode of thought becomes more and more defined and systematic among his successors. An attempt was soon made so to play this game at chess, that human reason could cry "check-mate" to religion. To compare religion with a game, is, in fact, to treat it as a stake; and the philosophy that was derived from Bacon persuaded itself, after a few moves, that it had won the game. According to the conception that is formed of the nature of religion and philosophy from the Baconian point of view, they form exclusive spheres, diametrically opposite to each other, and therefore in a state of mutual contradiction. The

opposition was silenced by an arbitrary decree; it was rather set aside than solved by a formal acknowledgment; concealed it was not. The formal acknowledgment rested to a great extent upon practical motives, political reasons, subjective grounds, that were rather prescribed to philosophy than derived from it. These were props that must necessarily fall before long, and with them falls the Baconian view of faith. The bond by which reason and religion are held together is broken; they fall apart, and their intrinsic opposition is shown in all the stubbornness of a logical contradiction. It is this contradiction alone that is carried further, and becomes more sharply defined, as the Baconian philosophy is disseminated. Philosophy is brought to this strait, that it must doubt either itself or faith; and thus arises the inevitable dilemma, that either human reason or positive religion loses its credibility. Reason becomes either sceptical with respect to itself, or incredulous with respect to religion; and of the two powers, *one* alone still remains firm. The firmness of revealed religion shakes the foundation of philosophy—the belief in the security of human reason, or the security of the latter shakes the authority of positive religion. Scepticism, which for a moment rests upon implicit faith, forms the transition to unbelief; and this point of transition

in the progress of the Baconian philosophy is reached by Pierre Bayle, who stands as the intermediate link between Bacon and the so-called "enlightenment" of the French, on the border line of the seventeenth and eighteenth centuries.

Bayle, like Bacon, makes repugnance to reason a ground for the affirmation of faith; like Bacon, he considers the contradiction between religion and reason to be irreconcilable; because, like Bacon, he finds the source of religion in the absolute Divine will, the source of human reason in natural laws. The absolute will of a Being subject to no conditions, and the knowing faculties of man, subject to natural conditions, bear no rational relation to each other, and, least of all, can the decrees of the Divine be comprehended by the human mind. They require blind faith and blind obedience. Any attempt at rational criticism of the positive articles of faith can only make evident the contradictions between the two. And it is just in this that the original and remarkable achievement of Bayle consists, that he made the contradictions evident, and employed all his acuteness in carrying them out, and exposing them to the eyes of every one. That repugnance of faith to reason, which Bacon had merely indicated, Bayle diligently expounded,

showing that reason is both practically and theoretically excluded by religion. Thus Bayle became, what Bacon was not, a critic of faith. Practical religion is holiness, theoretical religion consists of the revealed truths of faith. Bayle showed, on the one hand, that holiness would not stand the test of natural morality; and, on the other, that the revealed truths of faith were opposed to human reason. His critique of reason proceeded according to the Baconian method; it proved the contradiction between holiness and morality, religion and reason, by pointing it out in definite instances; that is to say, by the way of induction. By "negative instances" he refuted the notion of that harmony that was supposed to exist between religion and philosophy, and established the opposition that had been acknowledged by Bacon. That the holy character was not, at the same time, moral, according to the rational notion of natural ethics, he showed by the life of King David.* That the positive doctrines of faith were not, at the same time, the doctrines of reason, and, indeed, never could become so, he showed by the dogmas of the redemption of man through Divine grace, and of the fall of man, in consequence of a Divine de-

* Compare article "David" in the "Dictionnaire Historique et Critique."

cree. The fall of man was with Bayle a “negative instance” against all speculation in rational theology. However the latter might endeavour to deduce sin from a Divine decree, every dogma could be opposed by a rational proposition. The fact of the Fall, with the host of moral evils that are its result, appears to Bayle absolutely inexplicable. Either man is not free — and in that case his acts cannot be counted sinful — or he is free — in which case his freedom is derived from the Deity. In this latter case, the Deity either willed sin — which is inconsistent with His holiness — or He did not will it, but passively permitted it. But to what does this amount? He did not prevent the actual occurrence of sin. Therefore, He either *would* not — which would be inconsistent with His goodness — or, in spite of His will to the contrary, He *could* not, which would be inconsistent with His omnipotence. On every side reason is hedged in by a labyrinth of contradictions as soon as it endeavours to explain the Fall of Man, and the consequent introduction of moral evil into the world. Without sin there is no redemption, and without redemption there is no Christianity. The revealed truths of the latter are therefore mysteries, impenetrable to human reason. By the philosophical propositions — nineteen in number — which Bayle opposes to these

theological propositions, he would prove that they are utterly irreconcilable—that it is impossible to demonstrate a speculative theology. The result of this criticism of faith is the contradiction between revelation and reason. Nevertheless, his intent is to oppose, not the authority of revelation, but of reason, which is to bow humbly before religion, believe implicitly, and, from all the contradictions which it has discovered by its acuteness, merely deduce its own nullity—its inability to explain religion, and prove it on rational grounds. Not with religion, but with philosophical scepticism, does Bayle conclude his investigations. Scepticism, as the act of doubt with which reason retires and humbly professes its own weakness, is, to him, true Christian philosophy.* Practically, Bacon was honest in his intentions with regard to his principles of faith; he wished to pass for a good Calvinist; and that he might live as such, he remained, contrary to his own inclinations, in a state of voluntary exile. A philosophy that ends in scepticism was congenial to his own peculiar mind; which, with its encyclopædic interest for historical variety, and its especially critical turn, could not tolerate the restraints of system. But this very talent for criticism which, in the case of Bayle, was combined with

* Compare the article "Pyrrhus," in Bayle's Dictionary.

boundless erudition, did not allow him to make the interests of religious faith a real necessity of the heart. He respected his creed; but faith did not belong to his mental constitution, and was still less compatible with his state of culture. After he had satisfied his critical propensities, given utterance to his doubts, discovered and formulised all the contradictions that can be urged by philosophy against the dogmas of the church, it was easy for him to talk of the subjection of reason to faith. His reason had spoken its last word, and that had expressed the contradiction between faith and reason; in other words, the irrationality of faith. More than this Bayle himself did not know. He could only discover and formulise contradiction; to solve it was beyond his power. Contradiction was to him a serious matter; his mind oscillated with restless activity between religion and philosophy, or among the speculative systems of the latter. Indeed, he himself was the living contradiction between faith and reason; the spirit of contradiction incarnate, which, without becoming untrue to itself, could at one blow convert all the objections to faith into so many oppositions to reason;—nay, consistently with itself, could not do otherwise. Thus alone can Bayle be rightly understood; and thus understood, he cannot

be called either a thorough believer or a thorough unbeliever. He was utterly sceptical; he remained a sceptic even in religion, even against his will,—he could not help it. With him only one point was firmly established, and that was the impossibility of solving the doubts which reason had introduced into matters of faith. “Blind faith” was the name that he gave to this impossibility. But a faith that is the result of impotence, of whatever kind it be, will have this in common with its origin—it will be *weak*. The infirmity of reason will not give strength to the faith that is based upon it. A want of belief in reason will not give security to our faith in revelation. There is, indeed, a faith that is strong enough to do without reason or science, and never to inquire after their doubts and objections. This all-sufficient, primitive, childlike faith is confident in itself, whether it is met by reason, with affirmation, or negation; indifferent whether reason ~~proves~~ proves it with a “because,” or concedes it with an “although.” With reference to this faith, which presupposes a childlike frame of mind, the Gospel has pronounced a blessing on “the poor in spirit.” Of this blessed class Bayle was not one; his mind was so rich, so various, so diverse in its tendencies, that it could not possibly become simple enough to enter the paradise of

faith. Faith may be strong and lively even when reason is weak, but it cannot become strong *through* the weakness of reason. Doubt is inherent in the faith of Bayle, which is the *mere punctum finale* of the doubting reason — the mute boundary of thought. The faithful will do well cautiously to avoid such an ally as Bayle. The faith which sceptics gather from philosophy and offer to religion is a gift of the Danai, which religion had better refuse. An admission of Bayle's faith into Christianity would be an introduction of the wooden horse into Troy, and the evils wrought by this faith in the night would soon be lamentably apparent, — there would be mere destructive doubt. Bayle, when, with his criticism, he has dissected and analysed faith, can no more recall it to life, than an anatomist can convert the organised "subject" he has dismembered into a living body ; unless, indeed, he calls Medea to assist him with one of her spells. In a word, Bayle's so-called faith is nothing but a *modified* expression of doubt, and the impossibility upon which it is grounded is an incapacity in Bayle himself, which, with the best intentions, he cannot convert into a capacity — even a capacity for faith. Bayle, like Bacon, requires the subordination of reason to faith, and on the same grounds ; but the consciousness with which reason expresses her

subordination is very different in these two thinkers. Both are aware of the contradiction between religion and philosophy; but Bacon glides over it, while Bayle dwells upon it, and with geometrical precision measures the chasm between faith and reason. He has far more to say on the subject of this contradiction than Bacon; and, in the same proportion, the consciousness with which he professes his subjection to faith is far less naïve, and seems verging on irony. Bacon did not wish to contradict religion; Bayle contradicts it actually; the former withholds what he could have alleged, the latter retracts what he has alleged already, partly and voluntarily withdrawing his opposition, when it is already a *fait accompli*, the validity of which he could annul, but which he could not undo. The doubts that he had expressed he could not forget, the sharp characters on the tablet of his mind he could not again efface, and with the most violent efforts he could not become strong in faith, after he had brought all his acuteness into play against it. That Bayle, at the end, insisted on being that which, through his own exertions, he could not possibly be—this internal contradiction gives an ironical turn to his confession of faith. However, it is not faith, but himself, that Bayle ironises, when he lays down the weapons of philosophy. The fact that his con-

fession of faith was honestly meant, by no means destroys this self-irony, but rather strengthens it by refinement. Hence Feuerbach rightly remarks: "Scepticism was with Bayle an historical ~~neces-~~ necessity; it was the concession that he made to faith; he was compelled to treat the very virtues of reason as its defects. The consciousness of the strength of reason expressed itself with ironical humility in the name of its weakness."

II. THE ANGLO-GALLIC "ENLIGHTENMENT."

IN truth, however, faith cannot be denied with more decided animosity, than when it is affirmed in such a manner, and on such grounds; namely, those of its contradiction to reason. What is left for science, if deprived of every possibility of obtaining faith by rational grounds, of finding from its own premisses a path that leads to religion? Now that Bacon and Bayle have established an opposition between faith and reason, nothing is left for the latter but an unconditional acknowledgment or an unconditional rejection of faith,—nothing but an utter renunciation either of himself or of religion. One thing is impossible; namely, that reason can believe *blindly*. If it is not blind at all, it cannot become so in particular cases. And, indeed, neither Bacon nor Bayle, who both took so much pains

to open the eyes of reason, could seriously intend to render it blind. Therefore, by their demand for *blind* faith, they could only mean that reason, although not blind, is to assume blindness with respect to religion; in other words, that it is to play at blindness. Thus, as it progresses, the Baconian philosophy leads not to a real, but to an apparent faith, to a mere external acknowledgment, behind which a consciousness of superiority is indulged in with greater security, or a cold indifference is concealed. Thus this merely apparent faith is either irony or indifference, if it is not altogether hypocrisy. If reason will not endure such a hollow and unworthy form, it can, on the Baconian basis, merely take the position of utter rejection with respect to positive religion. Following the same criterion by which the superiority of revelation has been shown, it now denies the system of positive faith; and of the very grounds on which faith has been apparently affirmed, it even now makes a ground of serious and thorough negation. Under the auspices of Bacon and Bayle, "enlightenment," if it could not be inimical, indifferent, or hypocritical, becomes absolutely and openly unbelieving, losing not merely religious belief, but belief in religion*, which it regards

* "Nicht blos den Glauben in der Religion, sondern auch den Glauben an die Religion."

as no more than superstition. Convinced that it must itself become hypocritical to profess a belief in divine revelation, this "enlightenment" is convinced that all who have ever believed in such revelations are, or have been, hypocrites themselves. As it carries about faith — if it does not openly reject it — as a mere show, it thinks it can have been no more than an empty show from the beginning. Incapable of truly acknowledging positive religion, it is equally incapable of giving a true explanation of it. Since the merely apparent faith is destitute of true grounds, it is explained from grounds that are, in fact, the worst, from mere selfish motives. As the so-called "enlightened" can only adopt faith for external ends, they fancy that it has never been professed for any but worldly purposes. Thus, in the mind of the Baconian "enlightenment," positive or historical religion is transformed into a mere creature of human delusion, to be explained by selfish motives; and the whole history of religion becomes a pragmatic narrative of superstition, hypocrisy, and priestcraft; in a word, a record of the maladies of the human mind. These are the features that characterise the "enlightenment" of the last century in England, and, more especially, in France, in its relation to religion. It raised its voice against positive religion in all those keys,

which, though they had not been prescribed by Bacon and Bayle, alone remained possible. As it could not adopt a blind faith, and saw in reason no foundation for religion, it therefore made religion a mere toy, treating it sometimes with contemptuous irony, sometimes with supercilious indifference, and, on occasions, with hypocritical reverence. When it proceeded honestly and critically (after its own fashion), it treated positive religion with all possible contempt, so explaining it, as utterly to reduce it to superstition, hypocrisy, and hierarchal imposture; thus turning all which had been accepted and believed, as a divine revelation, into a sport of the human will. Its explanations of historical religion were as negative as they were superficial and shallow; indeed, they could not be otherwise on the given premisses. These were couched in the formula already determined by Bacon and Bayle for the relation between faith and reason; namely, the proposition that the credibility of the divine revelation was strengthened by its incompatibility with reason. This formula had two sides. Its obverse or positive side was revealed in Bacon and Bayle; its reverse or negative side, in Bolingbroke and Voltaire. Whereas Bacon had declared that the more a divine mystery was opposed to reason, the more must it be believed

for the honour of the Deity; the other party said, "The rather must it be rejected for the honour of human reason." In the light of these modern thinkers, the casual expression by which Bacon compared the articles of faith with the rules of a game, became more portentous and significant than he had intended. Bolingbroke and Voltaire, with their whole train of adherents, really thought of religion as a game, the rules of which had been devised for selfish ends by the human will, and passed off as divine revelations. Thus they explained religion according to their own notion of it, and such an explanation, forsooth, was then called the "enlightenment" of the world on the subject of religion.

Such is the relation between positive religion and the Baconian "enlightenment." It is only the exponent of this relation that we exhibit. The relation of a philosophy to religion furnishes a standard by which the scientific dimensions of the philosophic mind may best be ascertained; namely, on what degree of elevation it stands, how far its vision extends, how deeply it penetrates the nature of things, and, above all, the nature of man. Let it be conceded that religion is the principal representative * of *historical* life

* "Träger," literally the "bearer" or "supporter."—J. O.

on a grand scale, and philosophy the chief representation of scientific culture as a whole, and we may lay it down as a canon that the relation of philosophy to religion is the same as its relation to history. If it is unable to explain religion, it is doubtless without all capacity for the interpretation of history, will never be able to appreciate the mental temperaments and motives of others, and will always judge a former age by the analogy of its own, — a proceeding as fallacious as that of contemplating the things of nature “*ex analogia hominis*” (as Bacon says) and not “*ex analogia mundi*.” Philosophy is incapable of explaining religion, when it either denies it as superstitious, or deduces it from motives which are otherwise than religious. Such is the judgment of the Anglo-Gallic “enlightenment” as represented by its most audacious spirits. Its mode of thought was intrinsically unhistorical; from its very first beginning it proposed to separate religion from philosophy, revelation from nature, faith from reason, and set them utterly at variance with each other. In the separation effected by Bacon and Bayle there was already a complete though an internal rupture, which of necessity soon had an external expression. According to the Baconian view, religion, which is the central point of human life, lay beyond the boundaries of reason; and

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therefore reason was beyond the boundaries of history, being just as unhistorical in its ideas as it esteemed religion irrational in its revelations. Religion appeared to reason merely theological, while reason itself was only naturalistic. History altogether, no less than religion, was to this philosophy, beyond the extreme boundary of its understanding.* The boundary, which Bacon and Bayle have set up between religion and philosophy, constitutes, in fact, the boundary that separates *their* philosophy and *their* reason from history. And it is clear why the Baconian understanding must have this limit. Its aim is a practical knowledge of the world, a utilitarian science; its scientific method is experimental experience. Tested by this aim, religion must appear an indifferent object; compared with this method, it must appear irrational. Even with its founder realistic philosophy was alien to religion; with his successors its position became hostile, the last (scientific) ground of the hostility being, on the side of philosophy, no other than the incapability of thinking historically.

* Dr. Fischer also says it was the "Ding an sich;" but the passage is complete without this simile, borrowed from the Kantian philosophy.—J. O.

III. THE GERMAN "ENLIGHTENMENT."

TAKING other points of view, the German "enlightenment" aimed at different results; in its very origin it contemplated a union between revelation and nature, between faith and reason. In this respect Leibnitz stands in diametrical opposition to Bacon and Bayle; and for the purpose of maintaining and defending this opposition, he wrote his "Theodicée." This book was not, indeed, the most profound and adequate representative of the Leibnitzian philosophy, which, even to the present time, is properly known by extremely few persons; but it was not without reason that it became the most popular of his works, and was read by all the educated community of Europe. It was directed immediately against Bayle, as a "confession" of the German mind, in opposition to the Anglo-Gallic. That "negative instance," which Bayle had advanced against the philosophy of religion generally, against all rational faith—namely, the Fall of Man and the introduction of sin into the world—the Leibnitzian "Theodicée" was intended to explain. It was, at that time, the only explanation with which philosophy extended the hand of friendship to religion; and to the very depth of

his thought Leibnitz was thoroughly in earnest with respect to this reconciliation. He had the idea of a rational religion that, far from opposing positive faith, should adopt and, to a certain extent, regulate it. But had not Bacon likewise this thought of a "natural religion or theology?" Yes, nominally, but not really. What Bacon called natural religion was the notion of a Deity, obscured by the medium of mundane objects; an acknowledgment of the existence of GOD derived from the observation of the orderly arrangement of nature; a doubtful conclusion founded upon doubtful premisses. And, even setting the doubtfulness aside, this so-called natural religion, this idea of God, is a mere reflection of the human understanding, not a divine revelation. Now it *was* as a divine revelation that Leibnitz understood *his* natural religion. By him the idea of God was regarded as an eternal original *datum* in the human soul, as an idea innate in the mind, and derived immediately from God Himself. What Leibnitz called natural religion was the natural revelation of God in the human mind, which could not possibly be in contradiction with the historical revelation; as in that case, God would have contradicted Himself. Hence, to a certain extent, Leibnitz made nature a criterion of revealed religion. He was the positive, as Bayle was the

negative critic of faith. Whatever in positive religion was contradictory to human reason was not to be believed; whatever transcended it was to be acknowledged. He drew a distinction between the super-rational and the anti-rational—a distinction well grounded in the spirit of his philosophy, but which could not be made by Bacon and Bayle, who identified the super-rational with the anti-rational, and made the latter their positive criterion of faith. Why? Because they deduced all positive or revealed religion from the divine will (*Willkühr*), because they recognised no sort of necessity in the Deity. That which is affected by the mere motiveless will, whatever that will may be, does not admit of any justification by reason, is under no law, and is therefore anti-rational. With Leibnitz, on the contrary, the divine revelations were regulated by a law, and therefore rational, even if this reason was not to be comprehended by that of man. Why? Because Leibnitz explained by the divine *Wisdom* what the others deduced from the mere will; because, according to his idea of God, there could be no place for a mere motiveless will in the most rational of all beings.

We adhere to our assertion that the relation of philosophy to religion is the same with its relation to history. If philosophy excludes religion, it is

incapable of thinking historically ; and in this predicament is the Anglo-Gallic "enlightenment." If, on the other hand, philosophy comprehends and penetrates religion, it has, at least, a fundamental capacity for thinking historically ; and this is the case with the German "enlightenment." In its foundation it unites religion and reason by the idea of rational religion, which is itself regarded as a revelation, and seeks a harmony with positive or historical religion, as its ultimate goal. Before this goal was clearly apprehended, an opposition between reason and revelation, between natural and historical religion, was to be found even within the precincts of the German "enlightenment." Here, also, was an age which remained involved in this opposition, and was, therefore, utterly unable to explain history ; although the explanations it advanced were much more serious and profound than those given in England and France. To prove this, we need only compare a Reimarus with a Bolingbroke or a Voltaire ! But with us, this opposition, at the foundation of which lay a reconciliation, sought to be reconciled anew, and conduced in itself to a more thorough solution of the problem, which was innate in the German "enlightenment," and could only be solved in one way. So long as natural religion was regarded as alone true and

possible (as in the ordinary "enlightenment" of the school of Wolf), historical religion could only be regarded as an outward show, to be explained, on closer investigation, by a reference to worldly motives;—so long was it impossible to get beyond a stubborn and exclusive opposition. To terminate this it was necessary to discover the affinity and connection between natural and historical religion, to comprehend the latter in its religious nature. Now the religious nature of an historical faith is never to be discovered by a merely logical understanding, but requires an historical understanding that is able to apprehend its peculiarities, to appreciate notions and emotions different from its own, and to explain them from their historical antecedents. An explanation of historical facts from historical antecedents, is a recognition of a necessity in history, and is what we call "historical thinking;" which is, in fact, natural thinking with respect to history. The historical, as distinguished from the abstract logical understanding, comprehends that human "enlightenment" does not date from the present moment, but consists of a gradually progressive process of culture, and is of a universally historical nature; so that the actual state of "enlightenment" only represents a state of elevation corresponding to its period. Thus all religion,

indeed human culture generally, is to be comprehended and vindicated not from the present point of view, but from the peculiar conditions of its own age. Compared with the state of thought in *its own* age, historical religion appears not as the opposite of that thought, but as its element and basis. From its very foundation, German "enlightenment" was compelled to think historically; the foundation was already established in Leibnitz, it was developed in Winckelmann, Lessing, and Herder, while no advance could be made during the age that was governed by Christian Wolf and his school. Lessing, above all, liberated the historical understanding, and in his "Education of the Human Race" (*Erziehung des Menschengeschlechts*) comprehended and vindicated positive religion in a corresponding spirit. The relation of Leibnitz to his contemporary Bayle is the same as that of Lessing to *his* contemporary Voltaire. Indeed, Leibnitz is distinguished from Locke and Bayle, and Lessing from Voltaire, just as the German "enlightenment" is distinguished from the Anglo-Gallic. The two bases are as different from each other as the two nations. The philosophy founded by Bacon liberated the natural understanding, investigating, developing, and establishing it in a sphere from which the histo-

rical understanding was excluded. The philosophy founded by Leibnitz produced from its own resources the historical understanding, which did not exclude the natural understanding; but subordinated it to itself. In opposition to Bacon and Descartes, it considered nature, according to our human analogy, as a progressive series that rose up to man as its unconscious goal. Thus nature, as it were, "præforms" history, while it organises man. Thus, from its very origin, the philosophy of nature is destined to become a philosophy of history, and from this point of view the historical philosophy of a Herder, and the subsequent natural philosophy of a Schelling, are to be judged. Herder, in his "Ideas towards the History of Man," speculates on the hypotheses of natural history; Schelling, in his "Ideas towards the Philosophy of Nature," speculates on the results of historical philosophy. And perhaps Schelling has not advanced natural science so much as philosophical history; perhaps he has not so much explained nature itself, as the religion of nature.

While the Anglo-Gallic "enlightenment" was only naturalistic from its very foundation, and therefore remained uncongenial to the historical process of human culture, the German "enlightenment" was, in its very purpose, humanistic. It attained its end in Kant. But the Kantian epoch

is also of import for the Anglo-Gallic philosophy, which, as it progressed, had been impelled to a point where it had found itself compelled to call in question the natural understanding and its knowledge. Here it occupied the mind of Kant, and gave this mind the last and most effectual impulse towards a thoroughly new inquiry respecting the nature of human knowledge. It was then itself carried out further by Kant, and resulted in the German philosophy.

CHAP. XII.

THE BACONIAN PHILOSOPHY CONSIDERED IN ITS RELATION TO
HISTORY AND THE PRESENT.

IF we compare the Baconian philosophy with history, its limit, as well as its contradiction, becomes clear beyond the possibility of mistake. The interpretation of history is manifestly a necessary problem of a real exact science, inasmuch as history itself belongs to reality. Now the Baconian philosophy is incapable of interpreting history. This incapacity is its limit. Nay, it is even aware of this limit, and by clearly-expressed judgments, that show self-knowledge, has excluded from its precincts the elementary ideas requisite for the interpretation of history. These elementary ideas are the human mind and religion. The mind is the subject and supporter of all history; religion is the basis of all human culture. If we cannot explain the mind, how can we explain the development of the mind, which is, in fact, history itself? Bacon has defined the essence of the human mind as the unknown and unperceivable magnitude, that does not enter his philosophical

calculations. How can he, to whom religion is a sealed mystery, explain its radiations in art, science, morals, and politics? How can the effects be known without the cause? Bacon himself has defined religion as an irrational object, and represented it to the human reason as an impenetrable "Beyond" (Jenseits). But religion is no such "Beyond," neither is the human mind. Both are powers of real life — the former an essential factor, the latter the sole subject of all history.

The realistic philosophy, which not only originates in the Baconian, but finds in it its widest sphere of vision, should not fall short of the spirit of reality. The unreal it may indeed exclude; but that which is real, which is given, which is an undeniable fact, it is bound to explain. It therefore contradicts itself, when it excludes historical reality, and regards the motive powers of that reality as insoluble mysteries. It falls short of the real world. History is the impenetrable residue, which will not be assimilated with the Baconian philosophy. The limit of the latter, which is not set by us, but imposed by itself, constitutes a self-contradiction.

I. BACON'S UNHISTORICAL MODE OF THOUGHT.

THIS contradiction may be pursued into its details. Bacon, in the well-justified spirit of realistic philosophy, has required an interpretation of history, and explained the nature of his requisition in precepts, than which nothing could be more suited to the purpose. He knew very well what he meant by the interpretation of history. But he has not complied with his own requisitions. When he himself enters the field of history, he does not so much explain as describe; and even when he does make an attempt to explain historical subjects, his attempts are in manifest contradiction not only with the historical method, but also with his own method of interpretation, which was based on the correct principle that things should be judged, not according to human analogies, but according to their own objective relations; in other words, that we should not accommodate the things to ourselves, but ourselves to the nature of the things. This principle of interpretation, which is alone correct and natural, requires, when applied to history, that the things of history should be measured and judged by their own standard; not as they are

related to us, but as they are related to themselves, their age and its conditions. And how did Bacon carry out this principle, which he had so urgently recommended, in his own historical explanations and judgments? He acted in direct opposition to it. He judged all preceding philosophers, the Platos and the Aristotles, not in reference to their age, but simply by comparing them with his own views. Whatever corresponded with these was affirmed; whatever was opposed to them, was denied and rejected as absurd. He made his own philosophy the standard of all others, judging and interpreting the historical manifestations of science merely by this analogy, than which nothing could be more subjective. In the same spirit he explained the "Wisdom of the Ancients." He assumed that the old myths were parables, and then assumed that these parables symbolised certain natural and moral truths in order to introduce his own moral and physical views. Thus the fable of Eros was made to harmonise with the theory of Democritus, and this theory with his own. But surely these assumptions were no more than a series of "anticipations of the intellect" vying with each other in their arbitrary character. Such "anticipations" were made by Bacon himself, who placed at the very summit of his method the declaration

that there ought to be no "*anticipatio mentis*," but only an "*interpretatio naturæ*,"—a thoroughly unprejudiced and natural interpretation of things! Ought any exception to be made to the application of the general principle? If none, why did Bacon himself make an exception in the case of the myths? He explains these by preconceived notions, by "*anticipations*" of the most arbitrary kind. The Baconian interpretation converts these poetic fictions into common-places, and understands nothing of their living peculiarity, nothing of their historical origin, nothing of their poetical and national character. By this allegorical interpretation poetry becomes prose, and Greek imagination is changed into un-Greek thought. Moreover, every allegorical interpretation is necessarily teleological, for it sees and explains nothing in its object, but its didactic purpose—a tendency which it either elicits or supposes. Every fable has a moral—is a production with a purpose, and as such must be interpreted. But from the methodical, or severely scientific method of interpretation, Bacon has rejected all teleology. Why, then, has he a merely teleological interpretation for the fictions of the ancients; or, rather, why does he turn the myths into fables, by a very unnatural and violent interpretation, giving them a purpose which

manifestly does not belong to them? Why, generally, does he regard allegory as the highest species of poetry? Allegory is a prosaic work, composed for a purpose; a poetical work is a product of genius. The genial creation of poetry is nearly akin to natural generation. Why, then, did Bacon expressly insist that nature should not be explained by final causes, when, according to the same Bacon, the highest kind of poetry resulted from a reflection on ends and purposes? We see how unnatural, according to his own view of nature, was Bacon's apprehension of the essence of poetry, how imperfectly he perceived its *natural* source. The creative imagination he did not comprehend; he treated allegory as the highest poetry, and lyrical poetry as none at all.*

The contradiction which we have indicated, is obvious enough. Bacon's historical explanations and judgments are in contradiction to the method of interpretation which he himself introduced. According to this, the facts of reality are to be comprehended with reference to their causes; but it does not comprehend the sense of poetry, of consciousness, of religion; it confesses that, by its light, the mind and religion both appear irrational facts. It requires an explanation of things without subjective prejudices, without human

* Compare chap. vi.

analogy. But Bacon's historical interpretations and judgments are according to the exclusive standard of his own philosophy. By this he explains poetic fictions, by this he pronounces judgment on the systems of the past. Will it be said that Bacon could have avoided these contradictions; that he could have applied his scientific method to historical subjects with greater fidelity and with more success; that, by a mere accidental deficiency, he fell short of his own principles? Such a judgment would be as inconsiderate as it would be incorrect. On the contrary, we must rather maintain that the Baconian method is in itself insufficient for the interpretation of history; that it is not equal to historical reality; that through its very principles it excludes the ideas that correspond to historical forces; that Bacon is, in fact, consistent with his method, while he seems to act in opposition to its highest precepts. His method is adapted to nature, so far as this differs *toto cælo* from mind; to mindless, mechanical, blindly working nature — to nature, that can be forced by experiment to reveal her laws, that will allow her secrets to be wrung from her by levers and screws. This method is only intended to be thinking experience; it unites the understanding and the sensuous perceptions, and, through its very principle, excludes

imagination from the contemplation of things. But can that which is made by the imagination be explained without the imagination? Can a mode of interpretation, which, on principle, renounces all imagination, be fitted for poetry and art? It may serve to explain machines, but not poetic creations. Can religion be explained without art, or history without religion? Is history, the living mind of man, to be approached by experiments? By what experiment can we explain the plastic power revealed in the poems of Homer and the statues of Phidias?

In the same degree that the Baconian method is adapted to nature, it is repugnant to history. Where nature has her limit that separates her from mind, there is the limit of the Baconian method—I do not say of the Baconian mind. Bacon's judgments, through the very circumstance that they are repugnant to history, are consistent with his method, which requires, once for all, that no truths shall be allowed to stand but such as are confirmed by experience in nature and in human life. It rejects, without scruple, every philosophy that misapprehends these empirical truths; and professes to have made the discovery that, in the earliest ages, a philosophy akin to ~~poetry~~ poetry stood nearest to these empirical truths—nearer than any system that followed. In its

own interest, it assumes the fact that, in the oldest philosophy and the oldest poetry, there was no other foundation than these empirical truths which it had itself approved. These must be found in the myths which must be interpreted from this point of view. Thus it is the Baconian method itself which offers an impediment to historical interpretation. Bacon's methodical interpretation of nature is, from its foundation, no more able to afford an interpretation of history than nature, as he understands her, to produce the human mind from her own resources. We draw a distinction here between the interpretation and the investigation of history. The former explains and comprehends the facts, which the latter seeks, establishes, and describes; they are as distinct from each other as description from explanation, history from science, according to the Baconian view. It is only with respect to the *science* of history that I maintain that the Baconian method is not the proper key. In the investigation of history, as of nature, it serves as an apt guide, as the only possible instrument for the discovery and establishment of facts. The first consideration everywhere is, the *quæstio facti*. Facts, whether they belong to history or nature, can only be found by the Baconian method. To find these, the investigator, whether of history or

of nature, requires his own experience and observation; he must draw his facts from sources which he himself has tested; and to sift them he must exercise a comparative criticism of sources, which is impossible without a careful weighing of positive and negative instances—a process that may be abbreviated and conducted by the same means that Bacon, in his “*Novum Organum*,” has pointed out to the investigator of nature. The discovery of facts is, in all cases, the result of a correct method of inquiry; and this, for every case, is exactly what Bacon has formulised. The facts of history, like those of nature, are only to be discovered by a just experience, the logic of which has been laid down by Bacon for every case. But, on the other hand, there is an essential difference between the interpretation of nature and the interpretation of history; they are as distinct as their objects, nature and mind; and Bacon himself, whose understanding was greater than his method, has admitted that the latter is incapable of explaining the mind. Nature presents him only with facts; but history opposes his ideas with other ideas (*Begriffe*), which he must deny, in order to establish his own. The ideas that have become historical appear to him as “*idola theatri*,” and, with respect to these, his method and his philosophy become an “anti-

cipatio mentis." The futility of all earlier systems becomes, with Bacon, an historical prejudice; and with this prejudice his historical explanations and judgments are connected. He thinks only of the present and the future, which he will enrich and liberate from the past; therefore he denies the past; but the past is history.

II. BACON AND MACAULAY.

EASILY comprehensible and great as this mode of thought appears in Bacon, whose vocation it was to effect a reformation in science, just as strange and just as much the reverse of great must it appear to us when, in our own times, an eminent *investigator of history* pays unconditional homage to the Baconian mode of thought, and extols it with a fanatical partiality that was altogether foreign to the founder himself. We are surprised, at the present day, to find a mode of thought adhered to, in that exclusive spirit that was necessary, two centuries and a half ago, to constitute an epoch that was subject to the conditions of its age; to find it adhered to by an historian who, above all others, should be sensible to the difference of times, and, more especially, should maintain the historical against the physical point of view; or, at any rate, should not overlook the

boundary between them which Bacon himself has observed. Nevertheless, Mr. Macaulay unconditionally takes up the cause of practical against theoretical philosophy, designating the former by Bacon's name; and in this spirit he repeats, and even heightens, the Baconian criticism of antiquity. To show the value of the practical philosophy above the theoretic, Mr. Macaulay exerts all his energies, pressing down the scale of the latter with every possible weight, to such a degree that the theoretical scale kicks the beam and loses all weight whatever. He associates practical interests, as he calls them, with Baconian philosophy, in the same uncompromising spirit that is evinced by De Maistre when he opposes the Baconian philosophy in the interest of religion. The relation of them both to Bacon most happily reflects the opposition between the English utilitarian and the French "romanticist." Compared with each other, the two portraits are of very different value, and we have no hesitation as to our preference. Assuredly a De Maistre cannot vie with a Macaulay. Compared with their original, both portraits will be found unlike, and exaggerated in that "belletristic" style that is ill-adapted for the enunciation of truth. Of the philosopher Bacon, De Maistre would make the Satan, Macaulay the God of Philosophy.

Such exaggerations may answer our modern novel-readers, but they can instruct nobody. With respect to Mr. Macaulay, we have two questions to propose:—First, What is the import of that opposition between practical and theoretic philosophy of which he is always talking? Secondly, What has his practical philosophy to do with Bacon?

Mr. Macaulay decides on ~~the~~ part of philosophy with a ready formula ~~that~~, like many of the kind, dazzles with words which really mean nothing;—words which appear the more empty and obscure, the more closely they are investigated. He says that philosophy should be for the sake of man, not man for the sake of philosophy; in the former case it is practical, in the second theoretic. He is in favour of the former and against the latter; the former he cannot sufficiently extol, the latter he cannot make sufficiently ridiculous. According to Macaulay, the Baconian philosophy is practical, the præ-Baconian and, more especially, the ancient philosophy, is theoretic. This opposition he carries to its extreme, and gives us an exaggerated representation, not in an unadorned shape, but in a figurative disguise, in aptly-devised images, so that practical philosophy always wears an imposing or alluring form, while theoretical philosophy is made to

look repulsive. By this play of words he wins the multitude, who catch at images, like children. Of practical philosophy he makes (not so much his principle as) his point, and of theoretical his target. Thus the opposition acquires something of a dramatic interest, and this involuntarily enlists the sympathies of the reader, who forgets the scientific question; and, provided the writer is unsparing of the images and metaphors with which he contrives to amuse the fancy, nothing more is required by the understanding. Every one of his words is a lucky throw, a good shot. ~~He~~ who, with a certain degree of facility, with a certain mastery over dramatic effect, knows how to convert principles into points, ideas into metaphors, can now-a-days achieve incredible victories over the bare truth. We have seen in Germany how, under such forms, every absurdity can make its way. Indeed, with us, even unadorned absurdity is not safe from public veneration. By the mere art of words, a grain of truth may be so blown out that, in the eyes of the multitude, who only judge by appearances, it may seem to be whole tons in weight. Thus, for instance, sensualism and materialism, which have a grain of truth, may be so expanded, may be screwed up to such a height, that they seem to leave no room for anything else. Feuerbach has found a great deal of

talent necessary, and has expended a vast number of startling and dazzling antitheses to give a brilliant aspect to materialism; but his disciples, without a spark of talent, can make this ounce of truth infinitely luxuriant in its growth. But as Feuerbach uses the party-cry of sensual, as opposed to speculative philosophy, so is the cry of practical against theoretical philosophy, raised by Macaulay. The chief object is not that the ideas shall be correct, but that the words shall be pointed. What does Mr. Macaulay mean when he says that philosophy should be for man, not man for philosophy; when he rejects theoretical philosophy because it makes itself the end, and man the means to that end; when he says that, in his eyes, practical has to theoretical philosophy the relation of deeds to words — of fruit to thorns — of an advancing army to a treadmill, where with all our turning, we still remain at the same spot? When I read dazzling phrases of this kind, I am reminded of the Socratic expression: "They are indeed said, but are they said right?" If we interpret Macaulay's words strictly, no philosophy in the world was ever practical; for never was there one that arose merely from so-called practical considerations, and not from philosophical considerations likewise. Just as little has there been a theoretical philosophy; for there has never been

one which had not for its motive a human necessity—that is to say, a practical interest.

We see to what this reckless play upon words ultimately tends. It defines theoretical and practical philosophy by means of a definition that will not fit a single real instance. The antithesis says absolutely nothing. Let us dismiss the antithesis and confine ourselves to the sober, intelligible opinion, that the value of a theory depends wholly on its applicability—on its practical influence on human life—on the use that we can derive from it. Utility alone is to decide the value of theory. Be it so; but who shall decide what is useful? All things are useful that conduce to the satisfaction of human wants, whether they be objects in themselves, or means towards objects. But who shall decide what is a human want? We take Macaulay's point of view, and perfectly agree with him that philosophy should be practical, that it should serve the purposes of man, that it should satisfy, or, at any rate, conduce to the satisfaction of his wants; and that, if it does not, it is useless, and consequently worthless. Now, supposing that there are wants in human nature that imperiously demand satisfaction, that, when unsatisfied, render life a torment, is not that which satisfies these wants to be deemed practical? If some of these are of such a kind that they can only be satisfied by

knowledge — that is, by theory — is not this theory to be deemed useful? nay, must it not be so in the eyes of the most determined utilitarian? Moreover, it is very possible that there are more wants inhuman nature than the utilitarian imagines, and that all these wants will not be contented with the *modicum* of satisfaction that he offers. It is possible that what the utilitarian terms theoretical philosophy, appears useless and sterile to him merely because his own notions of human nature are too narrow and sterile. The question really is, what idea do we form of man. According to this idea we estimate human wants; and as our view of these wants is narrower or broader, we decide on the utility of science and the value of philosophy. But it is a rash and unseemly proceeding to begin by commanding man to have only *so many* wants, and then inferring that he requires only *so much* philosophy. To judge by Macaulay's examples, his notions of human nature lead to no very great results. "If we are forced," says Macaulay, "to make our choice between the first shoemaker, and the author of the three books 'On Anger' (Seneca), we pronounce for the shoemaker. It may be worse to be angry than to be wet. But shoes have kept millions from being wet; and we doubt whether Seneca ever kept any one from being angry."

I certainly should not select Seneca for my target if I meant to hit theoretical philosophy; and still less should I choose those whom Mr. Macaulay prefers to Seneca, for my allies, if I wished to drive the theorists out of the field. With such auxiliaries it would be possible enough. Macaulay throws things very different from the sword of Brennus into the scale that he would make the heavier! However, he ought not merely to doubt, but *know* whether the meditations of a philosopher (even of a Seneca) are absolutely without avail against human passions; whether they do not confer equanimity on the human soul, and render it stronger in the presence of death than it would be without them. To oppose one example with another, I can mention a philosopher far more profound than Seneca, and, in the eyes of Macaulay, likewise an unpractical thinker, to whom the power of theory was far greater than the power of nature and the ordinary wants of humanity. Through his meditations alone was Socrates cheerful when he drank the cup of poison! Of all ills, is there any that exceeds the fear of death in the human soul? There are, indeed, many who would rather get rid of death, than the fear of it; who would rather lengthen their lives, than be so armed in every case that they could look death calmly and cheerfully in the

face. All these would have considered Socrates more *practical*, if he had taken the advice of Crito, and escaped from his prison at Athens, to die of old age in Bœotia or elsewhere. Socrates himself thought it more *practical* to remain in prison, and, as the first martyr to the liberty of the mind, to mount up to the gods from the height of his theory. Thus, in every case, man's own wants decide upon the practical value of an action or a thought, and these, again, are determined by the nature of the human soul. The difference of wants corresponds to the difference in individuals and in periods. Mr. Macaulay makes a particular class of human wants — those of ordinary life — the standard of science; and, on this account, he abjures theoretic, and narrows practical philosophy. This standard is as little suited to himself as to the nature of the human mind. If he had not other and higher wants than those which are satisfied by *his* practical philosophy, he would not have been a great historian, but one of those whom he prefers to Seneca. His practical philosophy is to the human mind what a tight shoe is to the foot; it pinches, and a pinching shoe is a bad preservative against wet.

We do not render human life more easy by narrowing science. The attempt to dam up the stream, however well meant — nay, however ad-

vantageous it may be for the moment — is, after all, an attempt to destroy the scientific impulse itself in the mind of man. And, indeed, the first attempt can only attain a permanent success, on the supposition that success has attended the second. As long as the desire of knowledge is an active want in our inmost nature, so long must we strive to satisfy this want, for this purely *practical* purpose — strive after knowledge in all things, even in those the explanation of which does not in any way conduce to our external prosperity, which are of no use beyond the foundation of that intellectual clearness which is their result. So long as religion, art, and science actually exist as an intellectual creation by the side of the physical ; — and the ideal world will not cease till the material world has ceased also ; — so long will man feel a necessity to direct his attention to those objects and to produce within himself a copy of the ideal world, as well as a copy of the world of nature. In other words, he will feel himself practically compelled, by an internal necessity, to attempt the theoretical cultivation of his mind. This has been the aim of the thinkers of antiquity, the ancients, of the middle ages, and of our own times; though all have proceeded in their own manner. It is true that neither the theories of the ancients nor those

of the schoolmen are any longer suited to our necessities; for our world has changed, and with it our mode of thought. But an unconditional rejection of those theories, is only a misapprehension of the *sense* that lay at the foundation of them all, as a mental necessity; that is to say, we say we judge of antiquity in a mind that is foreign to its spirit, and apply to its theories a theory of our own that, being wholly inapplicable and therefore unfruitful, may be ranked among the phantasms of the brain. This non-historical mode of thought was Bacon's defect, in which Macaulay participates. In Bacon's eyes, the theories of classical antiquity were "Idols;" in ours, the Baconian theory of antiquity is an "Idol" in its turn. To him, the philosophies of a Plato and an Aristotle appear as "*Idola theatri*;" to us, these very views appear "*Idola specus et fori*"—personal and national prejudices. Bacon has as much misapprehended the spirit of history as the ancients, in his opinion, misapprehended the laws of nature.

But by rejecting theory altogether — not merely the theories of the past, but the contemplative mind, as an entire *genus*, simply because it has not an immediate influence on practical life, we close our eyes not only against history, but also against man and the wants of humanity —

we overlook an impulse that belongs to the very elements of our nature. This mode of thought, so opposed to nature, is the defect of Macaulay, in which Bacon does *not* participate. Bacon thought too highly of the practical mind of man to lessen or straiten the theoretical. He wished to raise the former to the dominion of the world; and therefore he wished to enlighten the latter into knowledge of the world. He was well aware that our power is proportioned to our knowledge; and therefore, to use his favourite expression, he wished to found in the human mind a temple after the model of the universe. According to him, science ought to be a copy of the actual world, which he could not, indeed, complete himself, but which, he hoped, would be completed in the course of ages. In this copy, according to his view, nothing, however small, should be wanting; for everything that is, he thought, has a right to be known; and it is the interest of man to know everything. Science appeared to his mind a work of art, the perfection of which was his grand object. His great mind saw that the completest science would establish the completest dominion, and that a gap in science would be a weakness in life. What does science appear to the eyes of Bacon? A temple raised in the human mind after the model of the universe.

What does it appear in the eyes of Macaulay? A convenient dwelling-house, fashioned to accommodate the wants of practical life. Macaulay is quite satisfied if we can carry science far enough to provide a place of safety for our goods and chattels, and, above all, shelter ourselves from the wet. The majesty of the edifice, and its perfection according to the model of the world, is to him a useless appendage—mere superfluous and hurtful luxury. Bacon did not take such a mean view of the subject. In the highest sense of the word, he was earnest with science. He only rejects those theories by which, in his opinion, the true theory was spoiled. Whatever appeared to him an incorrect copy of the world he flung aside as a ground-plan, in following which, man had for whole ages built nothing but castles in the air. Among these ground-plans he found some belonging to the earliest ages, which, though not copies, he considered symbols of the world; and these he endeavoured to interpret after his own fashion. Macaulay is astonished, in this case, at the morbid degree to which a talent for analogy is developed in Bacon; but he does not perceive the connection of this talent with Bacon's method; he does not see that Bacon looked to analogy as an expedient by which he might pursue his theory further than his method permitted, and thus ren-

der the temple of science broader and more lofty than was possible by the unaided use of his instruments.

Mr. Macaulay lessens Bacon by trying to augment him and elevate him above all others. If he understood Bacon's mind, as the latter understood the world, he would have formed a different judgment either of Bacon or of theory. His error consists in this, that he would make an historical prejudice of Bacon into a law of nature; that he repeats and heightens this prejudice as if it were now as just and as comprehensible as at the time when it was originally expressed. Bacon's historical prejudices are to be explained by the particular degree of culture which his age had attained — to be vindicated, above all, by his own historical position. It was his mission to renovate science, and to open to the new spirit of the age a path in the region of science, after it had already made for itself a way in the region of the church. Hence he was forced to reject the theories of the past. The founders of the new are seldom the best interpreters of the old. Indeed, it is impossible that they should be so; for the old is in their eyes something foreign to their purpose, and it is their vocation to deprive it of the sanction of mankind. It is not till afterwards that that which has been exploded becomes again an object

of human consideration as something yet to be explained, and then comes the time for a truly impartial judgment. This sort of justice does not belong to the vocation of reforming minds. To know the historical value that is to be attached to the ancient and scholastic philosophy, we must not consult Bacon and Descartes. The greatest reformer of philosophy that ever lived, Immanuel Kant, was the least able of all to explain its past. He only saw and only aimed at one vulnerable point; this he hit, and cared little about anything else. It is just this hard and dictatorial character, that, from its own point of view, heaps together and rejects whole ages of science, that both in Bacon and in Kant aided the work of renovation in philosophy. Leibnitz, who, in spite of his vocation as a reformer, was, nevertheless, most zealous in his efforts to treat the ancients in every respect with justice, is not to be cited as an instance to the contrary. His position was utterly different from those of Bacon and Kant. Leibnitz had not, like them, to create a new spirit, but to reform a new spirit that already existed, having emanated from Bacon and Descartes. This new spirit he wished to free from the one-sidedness that was displayed in its exclusive and disdainful attitude towards antiquity; and thus his renovating philosophy involuntarily became a re-

storation of the ancient. This reformation was, at the same time, a *rehabilitation*.

That which in Bacon was right, and suited to the spirit of the times, is not so now. He might declare the philosophy of the past unpractical, and confirm this summary judgment by making a philosophy of the future. But it is at once wrong, and contrary to the spirit of the times, still to retain Bacon's opinion of antiquity, and under the banner of his philosophy, to declare war against theory in general. Bacon's philosophy itself (as, indeed, every philosophy is by its very nature) was a theory, and nothing else; it was the theory of the inventive mind. Nothing great, in the shape of invention, is attributable to Bacon; he was far less inventive than the German metaphysician, Leibnitz. If by practical philosophy we mean invention, Bacon was a mere theorist; his philosophy was nothing but a theory of "practical philosophy." Bacon did not wish to narrow theory, but to reinvigorate it and to open for it a wider field of observation than it had ever had before. I do not know with what eyes any one can have read Bacon's works to interpret their spirit in a narrower sense. Besides that manly vigour that feels itself called upon to achieve great deeds, and fully equal to its mission, these writings breathe the irresistible spirit of youth and genius,

in which a sense of something new is awakened; and which, conscious of its own strength, everywhere expresses its own convictions in plain and unvarnished terms. Not unfrequently does the calm thought speak in the language of imagination; and the end that Bacon pursues — practical and generally useful as it is — often appears in his descriptions as a youthful ideal, accompanied by significant images and great examples. What charms us in Bacon, with peculiar fascination, enabling us not only to think, but also to *feel* with him, is, in addition to the weight of his own ideas, that freshly awakened passionate thirst for science which carries him along and pervades all his projects; and which, though he cautiously compels it to bridle its energies, so as not to be borne headlong, he never commands to become extinct, or to be satisfied with little. No, the beverage desired by Bacon is pressed from numberless grapes, though only from those that are fully matured and prepared. The Bacon that we find in his own writings, knows no bounds to human knowledge within the compass of the universe, no *ne plus ultra*, no pillars of Hercules for the mind. These are his words, not ours; and had he thought differently, he would not have written his books on the dignity and advancement of the sciences. These works

afford the best proof of the wide extent of theory in Bacon's mind; the best proof that he did not wish to limit and restrain it, but to renovate it and extend it to the boundaries of the universe. His standard of practicability was not the mere utility of the *bourgeois*, but that generally human utility to which knowledge, *as* knowledge, belongs. In his dedication to the King of England*, he says: — "To your Majesty, — it is proper and agreeable to be conversant not only in the transitory parts of good government, but in those acts also that are in their nature permanent and perpetual. Amongst the which, if affection do not transport me, there is not any more worthy than the further advancement of the world with sound and fruitful knowledge. For why should a few received authors stand up like Hercules' columns, beyond which there should be no sailing or discovering, since we have so bright and benign a star as your majesty to conduct and prosper us?"

This is not the Bacon that Mr. Macaulay would set up as one of the Hercules' pillars of science; and here, in brief, is the distinction between the two. What Bacon sought was new, and, rightly understood, is eternal. What at the

* In the second book of "Advancement." The passage also occurs in "De Augmentis, II." — J. O.

present day is desired by Macaulay and many others, who use the authority of Bacon, is not the new, but at most, the *modern*. The new is that which opposes itself to the old, and serves as a model for the future; in this sense, there is very little that is new in the world — the new is only the truth of extraordinary minds in extraordinary times. The modern is that which flatters the present, and gains the largest amount of suffrages from the public opinion of the day. As far as I can see, we have nothing new in art or science, nothing that we can oppose to the ancient, and hold up as a light to posterity; and to judge from appearances, all the real innovations of the present day occur and are sought in other fields, where, indeed, they are more required. That which, in our day, would pass for something new in art or science, is, in fact, nothing but an artificial, and therefore intrinsically unsound revivification of the old — an affected repetition of what has been. Its value is that of a theatrical *intermezzo*, which serves to amuse the multitude while the stage remains empty between the acts. The new is achieved by genius that is never guided by the multitude; the modern by the masses. Thus the materialism of the present day is modern; and akin to it and likewise modern are the campaigns that are carried on, amid loud applause,

against all the greatness of our past in art and science. Everybody who courts ignorant applause has the word "practical" in his mouth; everybody, forsooth, will be practical; and so he is, provided he can thus pursue and attain his own ends. Only these interests of the present day, and of special *coteries*, have no right to appeal to Bacon, who, in science, had nothing in common with them; and who, if he knew of such narrow and mischievous prejudices, would doubtless have classed them — and very properly — among the "Idola fori." If, like Bacon, we consider practical utility on a grand scale, measuring it not by individuals, but by the state of the world, theory becomes expanded of itself; and the passion for knowledge has no reason to fear that an arbitrary restraint will ever be imposed upon it in consequence of such a practical point of view.

The genuine mind of Bacon is a wholesome example for any time. After the purely theoretical labours in art and science have come, as it seems, to a stop for some time, the impulse to an activity and culture of general utility is revived with increased liveliness, philosophy seeks anew the exact sciences and experience, and her desire for knowledge is once more directed to the living objects of nature and history. The exact sciences

are applied to public life, that they may stimulate it to invention, or instruct and enlighten it. Thus the physical sciences fertilise history, the historical fertilise politics; everywhere an effort is revealed on the part of scientific theory to become useful, or, at any rate, generally intelligible. The departments of science vie with each other in contributing their aid to general culture and serving practical interests. Those among them all that contribute the most, are of the greatest value with regard to that culture that has general utility for its end; and this pre-eminence undoubtedly belongs to the physical sciences, especially those that by dint of mechanical and chemical discoveries have elevated the inventive mind, and enabled it by new means of communication and industry to give an entirely new form to ordinary life. Here the spirit of Bacon has imprinted upon the present deep traces that are not to be mistaken. Nay, the whole scientific energy of our times is Baconian in its tendency, and we can easily see why the augurs of the day once more evoke this name with increased urgency. We grant, that any attempt to oppose such a torrent, with a dam stronger than itself, would be futile indeed; but then, on the other hand, no one should attempt to convert the torrent itself into a

dam, and thus to petrify the spirit of Bacon into a Hercules' pillar. Far from disregarding the example of Bacon, we would oppose a true to a fallacious example. The spirit of Bacon may, indeed, stand as a model for the present; but it should appear in all its greatness, not as a disfigured or diminished counterfeit, such as the celebrated English historian gives us in his etching. Bacon's opposition to theory was in a double sense historical. He opposed an historical theory that belonged to the past; he sprang from an historical position that was to decide the turning-point between the past and the future. This opposition was relative, and should not be made absolute; being mainly adapted to a certain age, it should not be applied to ourselves and all ages without distinction. That which is an "idol," though an inevitable one, in Bacon, ought not to be converted into a truth for us; for the light of the Baconian mind would thus be turned into a misleading *ignis fatuus*, which, at the present day, no one would have been less inclined to follow than Bacon himself. Even Mr. Macaulay shows how little that opposition, which he stamps with the name of Bacon, is really grounded in his own mind. If we set every other consideration aside, the very style shows, that where

Bacon was in earnest, Macaulay is only in sport. Bacon had experienced within himself and actually felt his opposition to antiquity, and to that which he calls theoretical philosophy. The opposition lay in the very condition of his intellectual nature. Very different, even as to its expression, does this opposition appear in Macaulay, by whom it is reduced to an artificial antithesis, which with the readiest dexterity passes from one party-word to another. This is the language not of simple feeling, but of artificial imitation. Mr. Macaulay, in his essay, bears the same relation to Bacon that a rhetorical figure bears to a natural character. Voltaire would have stood in a similar relation to Shakespeare if he had wished to represent and imitate a Shakesperian character.

History itself has pronounced the final judgment in this matter, and the historical fact is the last negative instance that we shall oppose to Macaulay. Bacon's philosophy is not an end of theories, but the starting-point of new theories, which were its necessary results in England and France, and of which some were practical in Mr. Macaulay's sense of the word. Hobbes was the disciple of Bacon. His ideal of a state is the direct opposite of the Platonic ideal in every point save one — namely, that it is an equally im-

practicable theory. Macaulay, however, terms Hobbes the most acute and powerful of human intellects. If, now, Hobbes was a practical philosopher, what becomes of Macaulay's politics? If, on the other hand, Hobbes was not a practical philosopher, what becomes of Macaulay's philosophy, that pays homage to the theorist Hobbes?

CHAP. XIII.

THE PROGRESS OF THE BACONIAN PHILOSOPHY.

STRICTLY speaking, philosophical schools are always the inheritors of systems. Where there are no systems, there is likewise no inheritance; for this arises when the school takes in hand and further elaborates, formally or materially, the intellectual edifice* of the master, if this edifice is not already complete enough to be inhabited in peace and comfort. In modern philosophy such schools have been founded by Descartes, Leibnitz, Kant, and Hegel. The Baconian philosophy has not had a school in the same sense as these; the formation of a system belonged neither to its purpose nor its constitution. Not in its purpose; for Bacon was a declared foe to every mania for scientific sects and systems, well knowing the mischief that is done to scientific progress by the confinement of forms. Not in its constitution; for this, like the mind of the founder, was

* The compound word, "Lehrgebäude," is commonly rendered "system;" but to accommodate Dr. Fischer's image it must be reduced to its elements.— J. O.

not planned for the formation of a complete and fully developed theory ;—for the establishment of a doctrine simply to be handed down from master to pupil, and to be elaborated in the same scholastic spirit. Just as in the strict sense of the word, we cannot say there was a Baconian system, so we cannot say that—strictly speaking—there was a Baconian school.

The influence of this philosophy extends far beyond the sphere of the learned ; it gives a tendency of the mind, which once taken, cannot be abandoned. Systems die out, for there is no permanence in forms ; but a necessary tendency of the mind, founded in human nature, is eternal. The nearer a philosophy stands to common life, the nearer its ideas correspond to actual wants, the less systematic it will probably be ; but so much the more indestructible will be its weight, so much the more lasting will be its vitality. It is impossible to banish ~~ex~~ experience from human science ;—and equally impossible to banish experiment, the comparison of particular cases, the force of negative instances, and the observation of prerogative instances from the region of experience. It is likewise impossible to deprive human life of the possessions that result from experimentalising, experience—namely, natural

science and invention; and if all this is impossible, the Baconian philosophy stands secure for all ages.

EMPIRIA AND EMPIRISM.

But it is another question whether all science consists merely of experience, whether experiments constitute the whole of observation, whether all the wants of human life are to be satisfied — the theoretical by natural science, the practical by invention. If such is not the case, only one hemisphere of life is illumined by the Baconian philosophy. By this consideration the value of experience is not denied, but the worth of the Baconian philosophy is limited. Its limit does not consist in its exaltation and logical vindication of experience, but in its utter subjugation to experience, in its reduction of all human knowledge without exception to the level of experience. This limit, at the same time, expresses the character, the specific difference of the Baconian philosophy, which is valid as a *special* philosophy, and in this capacity will serve as a guide for a series of investigations, which describe* a whole period. Bacon has referred human knowledge to

* "Describe," in the sense in which a planet is said to describe its orbit. — J. O.

experience by rectifying the latter, and at the same time limits philosophy to experience, by elevating the latter into the principle of all sciences. Now, it is very possible to take the first of these steps without taking the second; and while we unconditionally agree with Bacon in the one case, we may have our doubts about the other, for it is one thing to seek experience, another to make experience a principle. Here is the difference between *Empiria** and *Empirism*. The former is experience as abundance and enjoyment, the latter is experience as a principle, which we may adopt and be very poor in true experience after all. Experience of the world always enriches science and extends it to an immeasurable degree. This is the positive and lasting influence of Bacon. It is true that experience of the world does not satisfy all the aspirations after knowledge that are to be found in human nature, but then ~~it~~ stands in the way of none. On the other hand, the *philosophy of experience* expressly opposes itself to all the speculative wants that experience of the world does not satisfy. It weakens the scientific interest in all

* It is needless to state that this word properly signifies neither more nor less than "experience;" but as Dr. Fischer uses it in addition to "*Erfahrung*" in a definite sense, it must be retained —J. O.

things that are not objects of experience, and would most readily turn this interest into indifference. Thus, for instance, religious indifference was founded in the very character of the Baconian philosophy. Indispensable as experience is to human knowledge, the *principle of experience* is of dubious value in philosophy:—not merely because it sets limits to the human mind, but because it is a principle assumed, though in itself doubtful—a dogma. Knowledge is only attainable by experience—such is the first axiom of the Baconian philosophy. Is even the truth of this axiom known by experience? and if so, by what experience? Are we not compelled to ask: By what experience is the principle of experience guaranteed? How does experience vindicate itself? Or are we not allowed,—nay, are we forbidden to judge the philosophy of experience by its own maxims? This inevitable test was naturally applied after the philosophy of experience had gone through its historical phases; and resulted in the decision that experience must no longer be received as an axiom,—that the philosophy of experience cannot be dogmatical, but only sceptical. This decision does not weaken “*Empiria*,” but Empirism.

EMPIRISM.

The realistic philosophy has now arrived at its last exclusive point of view. It follows the Baconian spirit, not in that extended sense which, conformably to experience, would widen the compass of human knowledge, but in that narrow sense which would restrict philosophy; that is to say, *all* human knowledge to experience. Hence we may foresee that the Baconian sphere of vision will become narrower and more exclusive at every step; but that, likewise, in conformity to its principles, it will be more logically and rigidly defined. Indeed, it is the nature of the philosophy of experience to become more narrow, the more it accommodates itself to the logical fetters of its principles. We can indicate the characteristics that have been already foreshadowed in the Baconian philosophy, and which become clearer and sharper at every logical step.

If experience can alone pronounce a final decision in every case, nothing but what is actually perceived can be accepted as a real object, and this will also be an individuality. On this supposition "universals" and generic ideas must be rejected, or, at any rate, merely regarded as names and symbols, which contribute nothing to

the knowledge of things, but only facilitate communication. To use the language of the scholiasts, Empiricism regards "universals" not as *realia*, but as *nominalia*. Hence the whole philosophy of experience, together with Bacon, is nominalistic in its views. Universal ideas are words, without objective foundation or anything objective to correspond to them; for the individual thing that we actually perceive is alone truly objective. Words are arbitrary signs, coined, like money, for the sake of intercommunication. Thus, language generally is to be looked upon as a work effected by human agreement, as a method of conversation; and from this point of view it is investigated and criticised by the Baconian philosophy. Indeed, Bacon himself had already classed the public credit that is given to words, among the "Idola fori." With this view of generic ideas and of language, an anti-formalistic tendency is necessarily associated;—an opposition to the Platonico-Aristotelian and scholastic philosophy, an aversion to any explanation of the world by final causes. Hence, as a matter of course, follows a predilection for materialism, as opposed to formal philosophy; for a mechanical explanation of things, as opposed to teleology; for Democritus and Epicurus, as opposed to Plato and Aristotle. All these characteristics are foreshadowed in

Bacon, and are common to the upholders of realistic philosophy, who ever bear this Baconian stamp.

Now if things cannot be thought by means of intellectual and generic ideas, the symbols of which are words, nothing is left for us but to think by means of the senses and their impressions; and thus experience is limited to sensuous perception. "All knowledge is experience," says Empirism. "Experience is only sensuous perception," says Sensualism, which has its necessary foundation in the philosophy of experience, and already is clearly foreshadowed by Bacon.

And what are things-in-themselves*, if they exclude all generic universality, and are merely objects of our sensuous perceptions? They must be the reverse of *genera*—individuals of a material kind—that is to say, atoms. According to its positive principles, the nominalistic view is also atomistic. The atomistic view belongs to the very character of a philosophy that deliberately limits itself to experimentalising experience; avoids the abstract ideas of the intellect; approaches things themselves, instrument in hand, not to generalise the conceptions of bodies, but to dissect the bodies,

* It need scarcely be mentioned that "Ding-an-sich" (thing in itself) is a Kantian expression used to denote a thing in its own nature, independent of our perceptions.—J. O.

and reduce them to their ultimate parts. This direction has been unequivocally taken even by Bacon himself; and the further the realistic philosophy leaves Bacon behind, so much the more definite does the atomistic view become; so much the more clearly, unreservedly, and exclusively, is materialism revealed. This proceeds so far, that it at last gives atomistic explanations even of space and time, which it declares to be composed of simple elementary particles. The infinite divisibility of space and time is declared to be the greatest absurdity by the same thinker, who converts the Baconian philosophy into scepticism.

We shall find that the empirism founded by Bacon is heightened in its atomistic, sensualistic, and nominalistic tendencies, as it logically progresses, and that at last it resolves itself into scepticism.

THE DEGREES OF DEVELOPMENT IN EMPIRISM.

These are the leading points of view taken by the thinkers of the Baconian age. We shall clearly and concisely bring forward the principal characteristics of this age, merely marking those points in the progress of the Baconian philosophy that may really be considered developments*,

* "Fortbildungen;" literally "progressive formations, or elaborations."—J. O.

whether they fulfil requisitions that Bacon has made, or carry out inquiries that he has stimulated; I mean such requisitions and ~~such~~ problems as immediately belong to the philosophical principles themselves. All these developments of the philosophy of experience have their roots in Bacon. To these roots we especially direct our attention here; firstly because they have not been sufficiently regarded, and the later advocates of realistic philosophy have been far too readily considered independent and peculiar thinkers than they really were; whereas, if they are compared to Bacon, they are nothing of the sort, or, at any rate, only to a very limited extent. Secondly, because we cannot better appreciate and understand these later results than by deducing them from their natural and historical origin, and, as it were, drawing them forth by the root out of the Baconian philosophy. Bacon himself, when he speaks of ~~the~~ method of instruction, makes the excellent remark that we cannot teach sciences better than by laying bare their roots to the learners.*

Compare "De Augm." VI. 2.

I. THE ATOMISM OF HOBBS.

IF we regard the Baconian philosophy in the direction which it took as opposed to antiquity and scholasticism, in the constitution which it adopted in conformity with that tendency, these points of view will appear most conspicuous: The sciences generally should be brought back to natural science as their foundation; — natural science should be based upon pure experience, and this, again, upon the natural understanding. Bacon had declared that natural science is the great parent of all the sciences; on this foundation, not only the physical disciplines, such as astronomy, optics, mechanics, medicine, &c., were to be renovated; but, “what will surprise many,” the humanistic also, such as morals, politics, and logic. This was a demand made by Bacon, — and, indeed, he was compelled to make it by the very nature of his philosophy; — but which he himself only hinted at in morals, left unfulfilled in politics, while he expressly declared it was not to be fulfilled in the case of religion. Here is a gap within the precincts of the Baconian philosophy; and this consequently is the problem that has first to be solved. Bacon wished to be silent on the subject of politics; and religion, according to him, was to

have nothing to do with natural knowledge. If we accurately formulise this problem, we shall find that in its broadest sense it insists ~~that~~ the moral world shall be explained on naturalistic principles,—that it shall be based on the natural state of man, and deduced from that basis. Hence we have the questions: “Which is the natural state of man? How does the moral order of things result from it?” or, to speak the language of Bacon, “How does the ‘status civilis’ follow from the ‘status naturalis’ of man?” This problem is solved by Thomas Hobbes, the immediate successor and disciple of Bacon.

He solves it altogether in the atomistic spirit of the Baconian philosophy. He becomes the politician of this tendency, and on political grounds detests the philosophers of antiquity with a violence still greater than that with which, on logical and physical grounds, they are opposed by Bacon. He wished to banish Plato and Aristotle from his state, as mischievous to the common weal, just as Plato from *his* republic would have banished Homer. In Hobbes the atomistic and nominalistic view is sharply and unscrupulously expressed, and that in reference to politics. All generic ideas are to him mere names and words; and these are nothing but conventional expedients for mutual intercourse. “Words,” says Hobbes, “are wise

men's counters, they do but reckon by them; but they are the money of fools, that value them by the authority of an Aristotle, a Cicero, or a Thomas (Aquinas).”* Thinking is judging; judgments are propositions; propositions consist of words; words are counters. Hence, with Hobbes, thinking is the same as reckoning.

1. THE STATE AS AN ABSOLUTE POWER.

Hobbes's view of nature, and also of the natural condition of mankind, was purely atomistic. From these principles he deduced the necessity of a natural contract; upon this contract he founded the state, to which he made morals and religion unconditionally subordinate. His conception of morals and religion was purely political, his explanation of the state itself purely naturalistic, — that is to say, it was founded on a natural contract, which was the necessary consequence of the natural condition of man. Thus that which Bacon either could not or would not effect was effected by Hobbes, — namely, the reduction of the whole moral world, together with the state, to natural laws. The state, in the worldly-political sense of the word, was to him the absolute and omnipotent total of all human community, of all

* “Leviathan,” Pt. I. chap. iv.

public religion and morality. Hence he calls this state the "mortal god" or the "great Leviathan," which recklessly swallows up individuals. His principal work is entitled "Leviathan, or the Matter, Form, and Power of the Ecclesiastical and Political State." Humanity, as the sum total of all community, is a product of political right, which, in its turn, is a product of natural right. Hence Hobbes unconditionally rejects the ecclesiastical state, and, likewise unconditionally, insists on the temporal authority in the state as an absolute power, altogether unlimited and illimitable. From this point of view Hobbes necessarily attacks every religion that is independent of the state, or — what is still worse — would be an absolute state itself, to which the political should be subordinate. He is the most violent opponent of the Puritans and Independants, on the one side, and of the pope, the hierarchy, and the Jesuits, on the other. His "Leviathan" is, at the same time, directed against Cromwell — who, with the aid of an unfettered religion, had just overthrown the monarchy in England — and against Cardinal Bellarmin, whose books in defence of the papal power he expressly refutes.

2. MORALITY AND RELIGION AS A PRODUCT OF THE STATE.

Religion and morality, properly so called, are, according to Hobbes, only possible through the state, for it is by the state that they are first made. By religion Hobbes understands the general belief in a Deity, and a public worship of Him; by morality, the public system of ethics. It is only through the character of a community that faith becomes a religion, and the moral sense morality.* Hence it follows, as a matter of course, that without human community there is neither religion as a common worship of God, nor morality as a common duty.

But the natural condition of man excludes all community. In this, men are merely natural forces, every one of which seeks to maintain and augment itself at the expense of all the others. Here, as so many unrestrained atoms, the rude impulses and desires, the selfish passions and emotions, predominate, and necessarily change the natural condition of man into a war of all with all. The selfishness of the individual alone decides the value of things, and determines the

* By the use of the word "Sittenlehre," in addition to "Moral," an appearance of tautology, unavoidable in English, is avoided in German.—J. O.

category to which they belong. The object of a selfish desire is termed good; that of a selfish aversion is termed bad. I seek what is useful, I avoid what is hurtful, to — myself. Thus private interest is the sole arbiter as to what is good and what is bad; these definitions are merely relative, according to the standard of individuals, and are as various as individuals themselves. “Nothing,” says Hobbes, “is in itself good or bad, beautiful or ugly.” There is, therefore, no natural morality; or, what is the same thing, the natural element of all so-called morality is human egoism. This is the concise proposition which, as the fundamental theme of their ethics, is carried out by the materialistic moralists of the Anglo-Gallic “enlightenment,” such as Mandeville and Helvetius. They take root in Hobbes.

The natural man is the selfish man. He only seeks to maintain himself and his own power, and, consequently, to increase the latter. He loves whatever promotes this power, hates whatever limits and imperils it. What he hates he attacks and persecutes; what he cannot attack he fears. Fear is impotent hatred; it is flight in the place of combat; it is a consequence of the inability to carry on and endure the fight. Hence the natural man hates and attacks the assailable powers that threaten his own; he fears and flies

those which are unapproachable, — the superior forces of nature. Here, with the ability of competition, the fight ends likewise; mighty nature with her terrors disarms man, and he stands timid and impotent before her. He does not know how to attack her. Why? Because he is unacquainted with the causes of her terrible phenomena. If he knew them, he would seek to devise means by which he might conquer the dangerous powers, and invention would take the place of fear. But, as he is not acquainted with their causes, a fear of mysterious, unapproachable, demoniac powers results from his ignorance; and this fear produces religion. Religion is a child of fear, which, in its turn, is a child of ignorance. This proposition shows the opinion of religion held by the philosophy of experience, when this is consistent with its own premisses; it is that favourite theme of the Voltairian enlightenment that is repeated with such especial satisfaction by the materialists of the Anglo-Gallican school. The explanation of religion was thus made to coincide so completely with the negation of religion, that nothing was left for the “cultivated world” but to scoff at religion altogether. As with Epicurus the Gods reside in the interstices of the world, so with Hobbes does religion exist in the interstices of physical science. Bacon had utterly excluded

religion from the natural knowledge of things; and Hobbes does the same. But Bacon based religion upon the supernatural revelation of God, whereas Hobbes bases it upon the natural ignorance of man. This religion based upon ignorance and blind fear is nothing but superstition. Thus religion is superstitious even in its natural origin; or, in other words, there is no such thing as natural religion.

Such, according to Hobbes, is the position of morality and religion. The principle of natural morality is human selfishness — the opposite of all morality. The principle of natural religion is superstitious fear — the opposite of all religion. The two propositions are closely and logically connected. All who have endeavoured to deduce morality from selfishness have deduced religion from fear, and *vice versâ*.

By the conversion of the natural condition of man into the state, his life, from being atomistic, becomes social and gregarious. The state by public laws declares what is good and bad for all. It thus marks the distinction between just and unjust actions, and likewise determines what is to be believed by all, what Deity is to be worshipped, and in what form. Thus the political sanction, the law of the state, alone pronounces the final decision between good and bad, between

religion and superstition; the law of the state alone determines what is universally useful, and should be universally revered, and thus constitutes both morality and religion. A legal action is good, an illegal action bad; the legal worship of the Deity is religion, the illegal, superstition. In the natural condition of man, according to Hobbes, everything is bad that injures *me*, every faith is superstitious that is not *mine*. In the state, on the contrary, the fear of such invisible beings as are publicly sanctioned by the legislature is alone religion; all else is superstition. Thus Hobbes plainly defines superstition as "the fear of invisible beings that are not publicly recognised." The distinctions between legal and illegal, and all that belongs to them—namely, the distinctions between good and evil, religion and superstition—are as absolute as the state itself. That distinction between legality and morality, upon which Kant rested the whole weight of his ethics, does not exist from the point of view taken by Hobbes, who recognises only one standard for the worth of actions,—namely, the public law. "The public law is the citizen's only conscience." There is with Hobbes no "tribunal," either within or without the state, stronger than the state itself; the state is absolute.

3. THE STATE AS A PRODUCT OF NATURE.

But how does this atomistic state result from the atomistic condition of nature? The answer is, by a naturally legal contract. Thus the first question is divided into two: How does a natural contract, in any form whatever, result from the natural condition of man? How does the absolute state, however constituted, result from the natural contract?

The natural condition of man is a war of all against all, which necessarily arises, because the human forces, by their very nature, are opposed in hostility to each other. But this very war, in the most formidable manner, threatens every individual with the loss of life and happiness; it is injurious to every one, and, consequently, repugnant to that law of nature by which every individual instinctively seeks the enjoyment of life, and fears death. The law of nature counsels every one to seek his own safety; and this enjoins every one to cease a war by which, to the highest degree, his safety is imperilled. It says, "Do not fight any longer, but let every one, for his own advantage, agree with all the rest." For this purpose, all those conditions that disturb the general peace must be abandoned. Those condi-

tions lie in the natural right by which every individual is permitted, nay, enjoined, to increase his own power at the expense of the others. Consequently all must abandon their natural rights, or, what is the same thing, transfer them to a third party. The "renuntiation" is, at the same time, a "translation." It takes place on all sides, because it is required by everybody; it is reciprocal, because every one parts with his own right on the sole condition that others shall do the like. This reciprocal transfer of rights forms the contract; and the contract constitutes the essence of the state in human society. It is commanded by the natural law of necessity, and is, therefore, to be implicitly carried out. Its object is the coexistence of persons in peace and security. All the conditions required for its existence are natural laws, the sum total of which constitutes, according to Hobbes, the only real morality.

The right, once transferred, is irrevocable; consequently the social contract itself can neither be rescinded nor altered. This contract is the foundation of the state, and holds the position in politics that is held by axioms in science. To contradict an axiom is absurd; and, in like manner, it is absurd and also wrong to rescind the contract that has once been established. That it may be impossible to commit such a wrong, the contract

must not merely consist of words, but must be armed with a power that imperiously requires and, in cases of necessity, compels recognition,—that can preserve its consistency, and, in cases of necessity, defend it. To the society formed by virtue of this contract, all the rights and powers of individuals are transferred. Society wields absolute power, and thus forms the state, which unites all rights and all power within itself. The power of the state is sole, unlimited, indivisible; it can neither be divided nor limited. In the presence of the state, all are *subjects*. The state alone rules, and is alone free. The others obey, they *must* do, what is enjoined by the laws. “Their freedom,” says Hobbes, “exists only in that which is not prohibited by the laws.” The state is absolute.

Now, this all-powerful state, this “people” to whom every individual is a subject—in what form does it exist? who is the state? Accordingly as the power is lodged with one person or many, the form of the state may be distinguished as monarchical, aristocratic, or democratic; but whatever be the form, the power of the state is, in all cases, absolute and indivisible. According to Hobbes, the legislative must not be separated from the governing power, nor the judicial power from the other two. All the powers are united

in a single hand, and are best and most naturally united in a single person. This absolute monarchy, or the absolute state in the form of monarchy, is, according to Hobbes, the normal condition of polity. "Society," "community," "people," "state," "king," are identical expressions. The king is the people, he is the whole; he concentrates within himself all the civil power; it is therefore logically impossible for a people to rebel against the king, for the king, in that case, would rebel against himself. Hence, in this model state, projected by Hobbes, the king might say, with Louis XIV., "*L'état c'est moi.*"

It is a natural consequence of the point of view taken by Hobbes in this theory of a state, that he most strenuously opposes the political principles of antiquity, of the middle ages, and of modern times,—the first, because they are republican; the second because they are partly feudal, partly hierarchic; the third, because they are constitutional. As opposed to antiquity, Hobbes is in favour of absolute monarchy; as opposed to the middle ages, he is the decided adversary of feudality, of the rule of priests and nobles; as opposed to modern times, he is an absolutist. As Bacon directs his blows against the Aristotelian *Organon*, so does Hobbes assail the Aristotelian politics. Both lay to the charge of Aristotle

the worst evils with which they are acquainted. Bacon makes him responsible for the wretched condition of science, and the word-wisdom of the English universities; Hobbes, for the wretched condition of the state, the destruction of civil order by the revolution, the English civil war, and the execution of Charles I. He desires that the republican writings of the Greeks and Romans should not be read in monarchical states, for they breed a "tyrannophobia, which is as bad as hydrophobia." The advocates of the hierarchy, especially the Jesuits, attack Hobbes as an atheistical politician. Montesquieu and Kant attack him as an absolutist. They make civil liberty depend upon the separation of the powers of the state, whereas Hobbes considers that the state is impeded by every separation of the kind, and will concede no other liberty than that which is not prohibited by the monarch. Every doctrine in favour of the limitation of the monarchical power is, in his opinion, revolutionary. The royal power should not be limited by anything; no moral conscience, no religious freedom, are to prevail against it; no private rights are to be considered inviolable, so far as the monarchy is concerned. The king, as the embodied law, sanctions the public faith, and is the state and church in one person. What this church prescribes, must be believed in blind obedience.

without investigation. If this church is pleased to sanction the Bible, the Bible is to be taken as the rule of faith without limitation, or so much as a scruple. It depends on this church alone what scriptures are to be deemed holy or canonical—in this church, which is the state, that is to say, the king. Thus does Hobbes understand a Christian state. There is the king, who gives the force of law to the articles of the Christian faith; there is the people, that acknowledges and follows as its religious code the articles that the king has sanctioned. With Hobbes, religious faith is nothing more than political obedience, equally unconditional, cold, and external. To his own infidelity he gives vent by converting religious faith into a state-edict—that is to say, a royal command; we are to believe not from conviction, but from subordination. With this subordination he is in earnest; but on the inner side of faith, on the conviction of the believer himself, he lays no stress at all. When he talks of it, he scarcely conceals his own coldness and indifference. The simile which is used on one occasion by Hobbes, to illustrate obedience in faith, is highly characteristic. He rejects all rational criticism of the canonical writings, on the ground that “divine mysteries must not be chewed, but swallowed whole, like pills.” Bacon compares the articles

of faith to the rules of a game; Hobbes compares them to pills: such is the hollowness, and in truth the profanity, of both in their internal relation to that religious faith to which they would give external support. The essential point is, that both accept faith through the medium of worldly policy.

Though he proceeds on similar hypotheses, J. J. Rousseau, in his "Contrat Social," appears as the very antipode of Hobbes. Both agree in the theory of a contract, by means of which they found the state, and put an end to the natural condition of man. Both would deduce the "status civilis" from the "status naturalis" by means of a contract, which converts (isolated) individuals into a society. Both take the same atomistic view of the natural condition of man. But here Rousseau differs in a peculiar manner from Hobbes, both by his nearer apprehension of the natural condition of man, and his nearer definition of the form of state resulting from a contract. According to Rousseau men are not enemies by nature; hence in a natural condition there is *no* war of all against all, nor, as in war, does the greatest right consist of the greatest might—in a word, the right of the strongest does not prevail. On such a right alone does Hobbes base the natural right of absolute monarchy, which rests upon a contract

that perpetuates the right of the strongest. With Hobbes, the contract is really on one side only; with Rousseau, it is truly reciprocal. With the former, all part with their rights, which they consign to an individual, who from that moment is alone all-powerful. "Men," says Rousseau, "according to the theory of Hobbes, give themselves away for nothing; and they turn a natural condition to a state, as the Greek heroes took refuge in the cave of the Cyclops." This state is, according to Hobbes's own expression, the all-absorbing Leviathan. Rousseau, on the other hand, would, by his contract, unite all to equal rights and equal duties; his social contract forms a state the power of which is lodged in the entire people, which with him consists not of a single individual, but of all. Hence his form of government is democratic. A state that gives equal rights follows from a contract that gives equal rights; and this results, according to Rousseau, from the natural condition of man. With views that are similarly atomistic, and necessarily lead to the theory of a political contract, Rousseau is, in all essential points, diametrically opposite to Hobbes; for he takes an opposite view of the natural condition of man, of the contract itself, and of the principle of community. With Hobbes, the natural condition of man is a wild chaos of

contending forces; with Rousseau it is a paradise of happy and peaceful creatures; with the former it is barbarous, with the latter it is idyllic. Rousseau's state bears to that of Hobbes the same relation that material nature bears to the terrible Leviathan. We do not stop to inquire how far the ideas of both are remote from the truth.

This point of difference between Hobbes and Rousseau is important, and opens a further view into the age of Anglo-Gallic "enlightenment." By his difference from Hobbes, Rousseau is opposed to the French *philosophes*, who are the intellectual progeny of Hobbes and Locke. Herein consists the strong contrast between Rousseau, on the one side, and Voltaire, Helvetius, Condillac, Diderot, and, above all, the Holbachians (as Rousseau loves to call them), in whom materialism reaches its culminating point, on the other. Here, in the very midst of the Anglo-Gallic "enlightenment," arises a mighty reaction. Consistently with his own notions of nature and the natural condition of man, Rousseau finds in nature the source of morality and religion; he does not, like Hobbes and Helvetius, find the source of morality in selfishness, but in love; he does not, like Hobbes and Voltaire, find the source of religion in blind fear, but in pious admiration. To his eyes nature appears, not as a

blind mechanism of forces, but as a moral, loving being, which unites men in brotherhood, instead of setting them against each other as enemies. His view of nature was intended to be of a moral-religious character, and was therefore to restore natural morality and religion in opposition to the prevailing "enlightenment." Here Rousseau, to a certain extent, unites himself with the German "enlightenment," which tends towards Kant; or, rather, German "enlightenment" unites itself with him.

Nearest akin to Hobbes is Spinoza, on whose political theory the English philosopher probably exercised an immediate influence. The "Leviathan" of Hobbes and the Political Treatise of Spinoza agree completely in their fundamental principles; but, in results, Spinoza's reason inclines him to the democratic, his wishes to the aristocratic form of government, whereas Hobbes, both from theory and inclination, chooses absolute monarchy. In politics Spinoza holds the middle position between Hobbes and Rousseau; in his view of the natural condition of man he is entirely on the side of Hobbes. Spinoza does not, any more than Hobbes, discover a source of religion and morality in nature; like Hobbes, he denies both on natural grounds, while, by Rousseau, both, on natural grounds, are affirmed. Hobbes's conception of the nature of the Deity was likewise similar to Spinoza's. The Deity was to

be conceived utterly ~~without~~ without human analogy, determined by no limit, humanised by no passion; all anthropomorphism, in short, was to be avoided. The Divine will is power; and this power is unlimited action. "Of God we can only say, in truth, that He is."* If we place Bacon by the side of Descartes, we may aptly compare Hobbes with Spinoza. Whatever there is of Spinozism in the Baconian philosophy is most clearly expressed by Hobbes.†

If we consider Hobbes in reference to Bacon, we must say that he has solved a problem, proposed by the latter in his *Organum* as entirely new, uncommon, and necessary: he has laid a physical foundation of morality and politics. And, indeed, Hobbes solved the problem in such a manner as to make morality and religion subservient to politics, and to reduce them to the laws of nature.

II. THE SENSUALISM OF LOCKE.

BACON had insisted that the laws of nature could only be discovered by experience, and that

* The words of Hobbes are, "For there is but one name to signify our conception of His nature, and that is, I AM."—*Leviathan*, II. 31.—J. O.

† On the subject of Spinoza's politics, and its relation to Hobbes, compare my "*Geschichte der neuern Philosophie*," vol. i.—*Author's Note*.

experience could only be attained by the natural understanding. Thus the question remained, What is the natural understanding? Bacon himself was chiefly interested in the question, How does experience arrive at invention? This inquiry stands in the foreground of his philosophy; the "Novum Organum" is devoted to it. In the background arises the question, How do we arrive at experience? how does experience result from the human mind? Or what is the human mind, if its knowledge, as Bacon has explained, only consists in experience? This is the problem solved by John Locke in his "Essay concerning Human Understanding." Locke takes root in Bacon; but, as far as I have seen, those who treat of Locke have not sufficiently recognised his dependent position with regard to Bacon — the historical root of his philosophy. With respect to Bacon, he is, indeed, far less independent than Hobbes. Hobbes has complied with Bacon's boldest requisitions, and, among all the philosophers of the Baconian race, is unquestionably the most original. Locke has merely carried out what Bacon has already explained and promulgated throughout his works. Hobbes found in the Baconian philosophy a mere cursory hint for the establishment of his views, whereas Locke for *his* views found a frequently repeated pattern.

I. THE MIND AS A TABULA RASA.

Bacon had often and expressly declared that the human understanding, to think correctly, must completely get rid of all preconceived notions. From these he had not made a single exception. Thus, according to him, there was not a single notion of which the understanding was unable to get rid, not one that was firmly rooted or *innate* in the mind. All notions must be first acquired by experience; therefore we have not, or ought not to have, a single notion prior to experience. Thus the mind without experience is destitute of all notions, is perfectly void, like a *tabula rasa*. This, I think, follows by very simple and evident reasoning, from the propositions of Bacon; and the conclusion thus drawn forms the starting-point of Locke.

To the question, What is the human mind prior to experience? Locke replies, It is a *tabula rasa*; for there are no "innate ideas." Bacon, in strictness, must have given the same answer to the same question; or, rather, he actually gave it. It is scarcely necessary to deduce Locke's principle from Bacon by a course of reasoning; we can find the principle, even verbally expressed, in Bacon himself. The understanding must lay aside all preconceived notions — must, according to the very words of Bacon, clear itself

of all notions whatever, render itself perfectly pure and empty, return to its original, natural, childlike state. Not only according to the spirit, but, according to the letter, of Bacon's words, the human understanding in its original state is destitute of all notions whatever. He himself calls the understanding, thus purified, "*intellectus abrasus*;" he himself compares the mind to a thrashing-floor, which must be cleansed, levelled, and swept out. In this labour consists the negative task of his philosophy; the first book of his "*Novum Organum*" is expressly occupied with the restoration of this "*expurgata, abrasa, æquata mentis arena*." What Bacon calls the empty floor, is the empty tablet of Locke; the thought is the same, and the words are essentially the same likewise. Bacon says that the human mind should be made like an empty tablet. Locke says that it is this by nature. In fact, it must be, if Bacon does not require an impossibility. What Bacon insists upon, as the condition precedent of his philosophy, is made by Locke the principle of *his*,—namely, the non-existence of "*innate ideas*." Experience is acquired knowledge; "*innate ideas*" are not acquired, but original, naturally inherent knowledge. The philosophy of experience must, as a matter of course, deny "*innate ideas*." The denial is expressed by Bacon, and repeated by Locke with a great number of arguments.

Hence the reason is apparent why Locke is commonly regarded as the adversary *par excellence* of "innate ideas." It does not merely consist in the fact that Bacon is less generally known. The most important contest that has been carried on respecting "innate ideas," is associated with the name of Locke. "Innate ideas" are affirmed by Descartes and Leibnitz, denied by Bacon and Locke. Locke opposed Descartes, Leibnitz opposed Locke, each party defending a theory that it had not founded, but adopted — Leibnitz the Cartesian, Locke the Baconian. They are, therefore, to be regarded as the champions that come forward for and against the doctrine of "innate ideas," though, in other respects, the relation of Leibnitz to Descartes is altogether different from that of Locke to Bacon. Against Bayle, Leibnitz wrote the most popular and exoteric of his works, the "Théodicée;" against Locke, the most profound and esoteric, the "Nouveaux Essais sur l'Entendement Humain."

Locke, in attacking Descartes, opposes all "innate ideas," both theoretical and practical. In the human mind there are no innate laws, either of the thought or of the will, neither axioms nor maxims; therefore there is no natural knowledge, no natural morality, no natural religion. Locke, conformably with the Baconian method,

confutes in every case by means of "negative instances." He says that, if there are innate ideas, all men must have them, whereas experience shows that most men know nothing of the axioms of contradiction and identity—indeed, never acquire a knowledge of them in the whole course of their lives. Consequently there are no innate ideas, and the human mind is, by nature, in every respect empty.

2. THE ORIGIN OF KNOWLEDGE.

Hence it follows that all the cultivation and repletion of the mind—as there is none by nature—is produced gradually. But from original emptiness nothing can proceed. Hence human culture arises solely from a continued intercourse with the world, under external influences; it is a product of experience and education; it is acquired*, as it is not original, the result of conditions external to ourselves. The mode in which human knowledge arises is, with Locke, not a "generatio ab ovo," as with Leibnitz, but a "generatio æquivoca." As, according to this physiological theory, the conditions from which an animate being results are not themselves animate, so, with Locke, the conditions from

* "Ist eine Gewordene"—*γίγνεται*. We have not a precise equivalent in English.—J. O.

which knowledge results are not themselves knowledge. There is no natural knowledge, in the sense of something originally given, but only a natural history of human knowledge, as something gradually produced. To pursue this is the peculiar office of Locke's philosophy, which describes the natural history of the human understanding, after it has shown that the natural understanding without history—that is to say, without intercourse with the world, without experience and education—is altogether empty, a *tabula rasa*. In this character, Locke shows us unquestionably his descent from Bacon, his affinity and analogy with Hobbes.

Hobbes teaches the natural origin of the state, Locke that of knowledge, both as a *generatio æquivoca*. The former deduces the state from conditions that are not a state, nor even analogous to a state, but rather the very opposite; the latter deduces knowledge from conditions that are not knowledge, or even præformations of knowledge, but bear the same relation to it that emptiness bears to repletion. Hobbes takes the natural condition of mankind as his starting-point; Locke, the natural condition of the human mind. This “status naturalis”—compared, in the one case, with the state, in the other with knowledge—is with both a *tabula rasa*.

3. KNOWLEDGE AS A PRODUCT OF PERCEPTION.

SENSATION AND REFLECTION.

The elements of all our knowledge are representations or "ideas." There are no innate ideas; therefore all ideas are received from without, or *perceived*. We perceive that which takes place either within ourselves or externally to ourselves; hence perception is external or internal, or both together; the former is termed by Locke sensation, the latter reflection. These are the natural sources of all our notions, the canals of the perceptions, by means of which representations are brought to the mind. Thus the blank tablet of the understanding is written upon.

When our notions are derived* through perception, they are simple; when they are derived from simple notions, they are complex. Hence in the whole sphere of the human mind there is not a single notion, the elements of which are not perceptions. "The soul," says Locke, "is like a dark vault that receives beams of light through a few chinks, and is able to retain them." Our knowledge arises from complex notions, these from simple notions, and these, again, from perception. The simple notions, as they are derived from sensation, reflection, or both

* *I. e.*, immediately.—J. O.

together, may be divided accordingly. They may also be divided accordingly as they arise from one sense alone, or several senses together. The impenetrability of bodies is, for instance, perceptible by the touch alone; it is, therefore, a simple "idea of sensation" arising from one sense alone. The motion of bodies is a change of place; extension is a definite occupation of space. Bodies must be felt; their figure and change of place must be seen. Hence motion, extension, space are simple "ideas of sensation" which result from more than one sense — from sight and touch. Thinking and willing are internal motions of the soul. Hence they are ever perceptible by reflection, and are, consequently, "simple ideas of reflection." Joy and pain are excitements of the soul, occasioned by an external impression. Hence they are perceived by reflection and sensation together, and are "simple ideas" arising from both.

We never perceive the intrinsic nature of things, but only their outward manifestation and qualities. As all knowledge is a product of the perception, Locke is forced to declare that we can only know the qualities, never the intrinsic nature of things. Thus the philosophy of experience, having reasoned itself into sensualism, decries metaphysics, and in its own manner anticipates the

negative result of the Critical Philosophy.* Here is the point of agreement between Locke and Kant, the point of difference between Locke and Bacon, who had allowed the existence of metaphysics. Metaphysics profess to be the knowledge of the substance of things. Substance is the fundamental idea of metaphysics. What is substance? Not an innate or original idea, for, according to Locke, there are none; neither is it a simple idea, for substance, as a thing-in-itself (*Ding-an-sich*) is not perceived; hence this idea is composed of simple ideas, is a creature of our understanding, a merely nominal, not a real being. The objective something indicated by the word "substance" remains dark; it is the unknown and unknowable essence of things. We know not the substance of spirit — of the body — of Deity; or, to express these results of Locke in the language of Kant, there is no rational Psychology, Cosmology, or Theology.

However, Locke was neither critical enough, nor strict enough, to refrain from every more definite expression respecting the concealed substance of things. In psychology he is almost a materialist, in theology a Deist. In the former he plants the germ of that materialistic doctrine of the soul, that is afterwards adopted by the

* This phrase, when used by German philosophical writers, always denotes the philosophy of Kant.

French philosophy ; in the latter he continues the Deism of Bacon, and commences the series of English Deists. Locke was consistent in doubting the immateriality of the soul, and in declaring, with a significant "perhaps," that it is material. For he conceived the human mind as a blank tablet, which was written on from without, and therefore, in truth, an impressionable thing, which puts on a corporeal nature. Hence arose his controversy with Bishop Stillingfleet, who regarded Locke's doctrine of the soul as a gross heresy. Hence he was declared to be a decided materialist by opposite parties — by Stillingfleet and Voltaire. This psychological hypothesis of Locke was in evident contradiction to his deistical principles. In theology Locke took for his foundation the very point which he had doubted in his psychology, basing his proof of the existence of the Deity, upon the thinking — that is, the spiritual nature of the human soul. The proof, concisely expressed, is as follows : — There are spirits ; therefore (as their cause) there must be an eternal spirit, since the spiritual cannot proceed from the spiritless, the thinking from the non-thinking. Either — thus reasoned Locke with great acuteness, — either there is no thinking being at all, or a thinking being existed from all eternity. By thus reasoning he founded a rational theology

which might be transcended, but was not to be contradicted by positive revelation. He denied that that which was repugnant to reason was worthy of belief, that revelation was to be accepted against the evidence of reason. Thus he rejected the proposition of Tertullian that Bacon had confirmed.

Locke was, however, compelled in strictness to adhere to his assertion, that there is no knowledge of the intrinsic nature of things, and that all metaphysics professing anything of the kind amount to mere word-wisdom. The only knowledge is of the qualities of things, whether of ourselves or of external bodies. Is this knowledge objective or not? In other words, among the qualities capable of being known, are there any that belong to the things, apart from our perception of them? Objective qualities belong to things in themselves (*Dinge an sich*); other qualities belong only to things perceived, and are consequently relative; that is to say, they are qualities of things in relation to ourselves. Locke calls the former "primary," the latter "secondary." Hence the question is, are there any primary qualities?

It is certain that within ourselves there are mental representations and emotions of the will, without any perception of them on our part.

Thinking and willing are therefore primary qualities of the human soul. It is likewise certain that bodies derive some of their qualities only through our perception of them. In themselves they are neither sour nor sweet, but first become so when we taste them; in themselves they are neither fragrant nor the reverse, but first become so through our sense of smell. These qualities are, as well as sounds and colours, secondary. But that which we feel corporeally does not exist in our sense of touch alone, that which we feel and see does not exist solely in our perception; there are objective perceptions to which real qualities of external bodies correspond, and such are impenetrability (or solidity) and extension, figure and mobility. All secondary qualities, according to Locke, must be deduced from these primary qualities, — that is to say, from the form, number, and motion of minute particles. Locke, therefore, desired that all the qualities of bodies should be mathematically and mechanically explained; and such an explanation was given by Newton. Here Locke's atomistic view is most plainly revealed; and from this may his theory of primary qualities be explained. He would not allow that there were any qualities in bodies but those that belong to atoms, — viz. solidity, extension, and mobility; and he therefore could not concede to physics any but a mathematical and mechanical explanation. To

explain a thing is to trace it to its causes, or to discover the natural causal connection of phenomena. Substance is, with Locke, a general idea, a mere nominal being — a word; causality, on the other hand, is a real relation.

If we compare Locke with Bacon, we find that he has given a psychological explanation of experience; and that he has explained it, in conformity with Baconian principles, from sensuous perception. He has defended the Baconian against the Cartesian principles, and expressed the philosophy of experience in the more definite and narrower form of sensualism. The empirical is with Locke identical with the sensuous; and this is the limiting criterion of human knowledge. The understanding never comprehends the sensible. That which cannot be known by the senses, cannot be known at all. Sensuous perception is the root, and sensible things are the sole objects of human knowledge. Of things themselves only the qualities—not the substance—can be known; and of these qualities, only some are objective and belong to the intrinsic nature of things. Thus, after Locke has explained and limited experience from a sensualistic point of view, human knowledge is reduced to a very small residue of objective elements. Nothing objective can be known, but the primary qualities of bodies, and the causal

connection of phenomena. All else is either not to be known at all—as the intrinsic nature of things,—or is mere sensuous perception—as the secondary qualities of bodies. This is the exact sum total of Locke's philosophy. The question now remains, whether a strictly sensualistic point of view can permanently secure the last residue of human knowledge, or whether, on a closer examination, both the constituents, one after another, must be abandoned. First comes the inquiry, whether the primary qualities of bodies are really objective, independently of our perception? If they are not, there are but secondary qualities,—that is to say, sensuous perceptions. Thus we know nothing of external things, but only our own impressions; and all human knowledge is thoroughly subjective, or nothing but empirical self-knowledge. Next comes the inquiry, whether causality is a real relation apart from our perception, and independent of it. If it is not, the last necessary and objective connection that combines the representations of the human mind into knowledge is destroyed; and with this *copula* the last support of our knowledge falls away, experience becomes causal perception, and consequently the philosophy of experience becomes scepticism. At these results the English philosophy arrives, by pursuing the sensualistic point

of view with logical consistency. The first step is taken by the Irishman George Berkeley; the second and last, by the Scotsman David Hume. Berkeley transforms knowledge as acquired by experience into empirical self-knowledge; Hume into a mere faith in experience. While Hobbes takes the middle position, and forms the transition between Bacon and Locke, Berkeley is similarly placed between Locke and Hume. Thus the three nations united under the British Empire, all take part in the history of empirical philosophy. Each, by means of its representative, marks a crisis in the history of empirism, which is founded in England, and when developed progresses to scepticism, which is prepared in Ireland, and perfected in Scotland. We have shown that Hobbes and Locke were consistent Baconians; it will now be seen that Berkeley neither is nor desires to be anything but a consistent Locke, and that Hume neither is nor desires to be anything but a consistent Berkeley. The three English philosophers are contemporaries of the great epochs in the national history of modern England. Bacon, the founder of empirism, and the immediate follower of the Reformation, began his career with the establishment of the House of Stuart, and the foundation of the United Kingdom under James I. Hobbes sees the de-

thronement of the Stuarts, the republic under Cromwell, and the restoration of monarchy in the person of Charles II.*; Locke's epoch is marked by the second dethronement of the Stuarts, and the establishment of the House of Orange; his work on the Human Understanding belongs exactly to the period of the English revolution, and precedes the French revolution by exactly a century.

III. THE FRENCH "ENLIGHTENMENT."

As Hobbes and Locke have their root in Bacon, so the French philosophy of the 18th century has its root in Locke, being related to the English philosophy as a colony to the mother country. It is not our purpose here to examine this colony more closely, or to follow out in detail the views of the French "enlightenment." Locke's propagandist was Voltaire, who transplanted the Baconian mode of thought to France, and set it in the place of the Cartesian, which had already been exploded by Pierre Bayle. Voltaire, one of the most fortunate and influential writers that the world ever saw, was at the same time one of the narrowest disciples of Locke's philosophy.

* His "Leviathan" is the expression of English absolutism.—
Author's Note.

which in itself opened no very broad prospect. Never was such wealth of *esprit* combined with such poverty of thought. Never did the so-called "enlightenment" extend its conquests so rapidly, so widely, and so playfully. "The world was astonished," says a serious student of history*, "to find how wise it had grown within thirty years by means of this man." Voltaire saw and judged everything through the medium of Locke, to such an extent that he even infected his dramatic personages with the English philosophy, and made the heroine of his "Christian tragedy," Zaire, talk as if she had studied the Essay on the Human Understanding. She speaks of the blank tablets of the mind, that are written upon by the influences of the world and education. All the contradictions of his philosophical master were adopted by this most docile of pupils, who, by his own talent, was able to make them easy and agreeable. He converted English philosophy into a French fashion, depriving it of all that was too solid or too difficult for such a position. Voltaire was also, like Locke, though in a less serious and inquiring manner, a Deist, whose views were in truth materialistic and sceptical. His Deism afforded him an opportunity for elo-

* Spittler, in his "Geschichte der Christlichen Kirche," vol. ii p. 431.

quent effusions; his materialism, on the other hand, allowed him to show the *bon sens* in conjunction with the *esprit fort*; and the commonplaces of scepticism, in the mouth of a Voltaire, sounded like critical acuteness. It was Condillac, however, who systematically carried out the principles of Locke, and in his analysis of human knowledge* brought sensualism to perfection, deducing all human knowledge from sensation alone, and leaving only one result possible,—materialism in its most naked form. Condillac was followed by the Encyclopædists; and his materialism was further elaborated by the Holbachians, represented by Lamettrie and the “*Système de la Nature*.” The tendency of the Baconian philosophy from the time of Locke is in England towards scepticism, which is finally attained in Hume; in France towards materialism—the light weight of which is suited to the capacity of light talents, whose extreme rear-guard has come down to our own days, to end, it would seem, in Germany. The less the power of thought required by a philosophical theory, the further will it naturally extend.

* As contained in the “*Essais sur l’Origine des Connaissances Humaines*,” 1746, and the “*Traité des Sensations*,” 1754.

IV. THE SO-CALLED IDEALISM OF BERKELEY.

The appearance of Berkeley among the English philosophers is seldom understood. Most are so surprised to find in the midst of decided materialists a philosopher who looks like an ultra-idealist, that they are tempted to award the latter a totally different position than historically belongs to him. An error of this sort is committed by an eminent historian of modern philosophy*, who transfers Berkeley from the ranks of the English to the ranks of the German philosophers, and places him with Leibnitz, as if he were the perfection of the latter. Berkeley is not the consistent Leibnitz, but the consistent Locke. With Leibnitz he has no historical point of contact; he rests upon Locke, as Hume rests upon him. Berkeley takes an historical and philosophical position between Locke and Hume, as the link in the series that marks a transition. It has been said that both Berkeley and Leibnitz attack Locke; and, from the opposition thus common to both, an endeavour has been made to put them on the same logical level; but we cannot deduce the equality of two magnitudes from the fact that they are both unequal to a third. Are not Locke and Leibnitz both ad-

* Erdmann, in his "Geschichte der neuern Philosophie," ii. 2.

versaries of Descartes, and at the same time opposed to each other on the very point which they attack in Descartes, namely, the doctrine of the mind? Leibnitz is just as far removed from Berkeley as from Locke. He opposes the principles of Locke that are shared by Berkeley, who only disagrees with Locke as to consequences. It seems that this error has been occasioned by a word. The name "idealism," which has been given to Berkeley's philosophy, has misled many to assign this philosopher to a family very different from that to which he belongs. Some would make him akin to Kant*, others to Leibnitz. Both are wrong. If by "idealism" we understand a tendency opposed to the sensualistic, no expression is less suited to the philosophy of Berkeley; compared with that of Locke, it is not less, but more, sensualistic. Locke was not enough a sensualist in the eyes of Berkeley. He was so in his principles, but not in his consequences; and this is the contradiction that Berkeley points out and solves. Locke had laid down the principle, that all knowledge must consist in sensuous perception; and yet he spoke of things that could never be perceived, such as material substances or bodies in general, as objects of

* Garve, in his critical review of the "Kritik der reinen Vernunft," published in the Göttingen "Gelehrte Anzeiger," 1782.

knowledge. He had laid down the nominalistic principle, that generalities are words and not things; and yet he allowed in bodies certain primary qualities, such as extension, mobility, solidity. Is not material substance or body an abstract "idea," an empty generality? Are not extension, mobility, solidity, general abstract "ideas," which, consistently with his own principles, Locke should have declared to be mere words, not things — not objective qualities — not real perceptible existences? But he said the very opposite. He was, tried by his own standard, too little of a sensualist, too little of a nominalist. He still held that some insensible things were perceptible, that some generalities were real.

1. THINGS AS PERCEPTIONS.

To this point Berkeley directs all his acuteness, — an attention thoroughly schooled by nominalism. There are no general things or bodies, but only individual things, perceptible by the senses. There are no more any general bodies than there are general triangles; the existing triangle is always definite, either rectangular, acute, or obtuse. Neither is there any general extension, motion, or solidity, but every conceivable extension is determined as large or small, every motion as swift or slow, all impenetrability in body, as hard or soft.

But all quantitative differences, whether of extension or motion, are manifestly relative. If I change my point of view, or sharpen my sight with an instrument, things will appear to me larger or smaller. Thus greatness and smallness are phenomena of the human vision, as well as light, figure, and colour; they only exist in my perception; and as every conceivable extension has a definite magnitude, without which it does not exist at all, so extension itself is not an objective quality of things in themselves, but merely belongs to my own perception. The ~~same~~ may be said of motion and solidity. The latter is either hard or soft; but hardness and softness are merely human sensations, and exist as little without our sense of feeling as sounds without our ears, colour without our eyes, sweetness or sourness without our taste. ~~Therefore~~ what Locke calls the primary qualities do not exist. Hence, to speak in Locke's language, there are only secondary qualities*, or, all the perceptible qualities of things are secondary; that is, they exist in us, not externally. But if everything perceptible is within ourselves, what is external to ourselves? Things — is the answer. But there are no general things; there are only individual sensible things. What are sensible things, if I deduct

* Compare the first dialogue between Hylas and Philonous.

from them all that is sensible or perceptible? The same that an iron ring is, if we take away the iron — nothing. The things, if I take away human perception, are — nothing. Imperceptible things are no things at all. Such nothings are bodies and matter in general, whether I consider them as the originals of my perceptions, or as their cause, or as their instrument, or as anything else. After the deduction of all sensible qualities, after the deduction of all human perception, matter remains equal to — nothing.* Imperceptible things are inaudible sounds, invisible colours; that is to say, impossibilities. Perceptible things are nothing but sensuous perceptions, as colours are nothing but phenomena of sight. Thus, by his nominalistic criticism of the philosophy of Locke, Berkeley arrives at the proposition, there is nothing but sensuous perception; that is to say, there is ~~nothing~~ beyond perceiving and perceived (perceptible) beings. The perceiving being, Berkeley, like Locke, calls the mind; the perceived object, likewise with Locke, he terms a representation or “idea;” and, in this sense, he declares there are only minds and “ideas.” This proposition is called the “idealism of Berkeley;” but it is, in fact, the sensualism of Locke, the nominalism of Bacon, further carried out. It is the very oppo-

* Compare the second dialogue.

site, and is indeed intended to be the opposite, of all idealistic philosophy on the Platonic model. This converts things into ideas, whereas Berkeley rightly makes his Philonous declare that he does not convert things into ideas, but ideas into things.* With Berkeley, things are always sensible things; and these are sensible impressions or perceptions. Sometimes he says, in direct words, ideas *or* sensible impressions. Philonous thus instructs his materialistic friend: "I see this *cherry*, I feel it, I taste it; and I am sure *nothing* cannot be seen, or felt, or tasted; it is therefore, *real*. Take away the sensations of softness, moisture, redness, tartness, and you take away the *cherry*. Since it is not a being distinct from sensation, a *cherry*, I say, is nothing but a congeries of sensible impressions, *or* ideas, perceived by various senses."

But why does Berkeley call things "~~ideas~~," when he only apprehends them in a sensualistic sense? To make it clear that things are facts *in* ourselves, not external to ourselves.

Perceptions are only in ourselves, and only possible through the nature of perceiving beings. But what are facts after the deduction of their perceptible qualities? They are nothing. Therefore they are and exist only in ourselves; that is,

* Third dialogue.

they exist as perceptions only in the perceiving beings. Being perceived is, with Berkeley, the same as existing. As a nominalist, he says, there is nothing imperceptible (or general); as a sensualist, there is nothing perceptible without perception, nothing sensible without the senses: and that no perception exists without a perceiving being, is manifest. Berkeley's so-called idealism is a consequence of his nominalistic principle; if there is nothing imperceptible, there is nothing but what is perceptible,—that is to say, nothing but perceptible objects and perceiving subjects. The former are ideas; the latter are minds: hence the proposition, there are only “ideas” and minds. In the natural validity of human knowledge, for all practical purposes, no alteration is occasioned by this theory. Berkeley can perfectly accommodate himself to the ordinary view of things, which he even confirms. Only, what are called things in ordinary language, he calls “ideas,” or things *in us*, which, as such, are as real and stand on as secure a basis as they do in the opinion of the unthinking, who fancy that nature is external to ourselves.

2. PERCEPTIONS AS THINGS.

We do not perceive things themselves, but only their copies in our minds; we only perceive our

own impressions. This is a proposition that has not first to be proved by Berkeley, as it is already admitted by every one. But most persons believe that the real things stand behind their impressions, and are, as it were, the originals that are copied and reflected in our senses. This opinion—this belief in things, the originals of the copies, external to ourselves—is what Berkeley seeks to destroy. The supposed copies of the things are sensuous impressions—our own perceptions. Now, let these impressions or perceptions of ours be abstracted from anything, and what remains? Nothing. What, then, is the supposed thing, the original of the copy? Nothing again. What, then, is the supposed copy? It is itself the original; our perceptions are the real things. Hence Berkeley says, I convert “ideas” (*i. e.* perceptions) into things. In the nature of things he manifestly alters nothing whatever; he only corrects our view of it. What all of you, he would say, look upon as images are the real things; and what you look upon as the real things are—nothing. To this point alone are all his explanations and proofs directed. The proof that the supposed copies are the things, and the supposed originals are nothing, is very simple. If we abstract from the things their perceived and perceptible qualities—that is to say, our own im-

pressions,—everything, without exception, becomes—nothing. And yet they must remain what they really are, if the impressions that have been abstracted are only their copies.

Our perceptions are things. This is the clearest and most concise formula for Berkeley's point of view. If they were only the copies of things, it would follow, as a necessary consequence, that our knowledge is vain and delusive—that we only know the outside show of things, and not the things themselves. The faith in things without us, the originals of our impressions, logically leads to scepticism. Hence Berkeley thinks that he has destroyed the very basis of scepticism. His dialogues were directed against the sceptics; and he did not know that within his own theory he was fostering the germ of a scepticism that was afterwards to be developed by an acute successor.

For ordinary refutations Berkeley is prepared; and he overcomes them with dexterity. If our perceptions are the real things, it may be objected that, as a necessary consequence, the sun really revolves round the earth, the stick is really broken in the water—and the like. To this Berkeley replies, Certainly the movement of the sun is a real perception, a phenomenon well established in the eye of an inhabitant of our

planet. But who bids us infer from this that the same phenomenon will also be perceived from another point of view, remote from the earth? In this case it is not the perception that is wrong and without foundation, but the consequence that is deduced from it.

3. THE DEITY IS THE ORIGINATOR OF OUR PERCEPTIONS.

But if our perceptions are “ideas,” and these are the things themselves, nature seems to be resolved into a mere creature of the human mind, and to lose all its security. How, then, are we to distinguish *these* “ideas” from *mere* ideas — things from fancies — the order of nature, governed by fixed laws, from the sport of human imagination? Where is the difference between reality and show? Our own fancies, which are mere “ideas,” we ourselves make; the perceptions or things, which are true “ideas,” we do *not* make; they are given to us as facts, they are *data*, of which neither we ourselves nor external things are the cause, and the cause of which can therefore be no other than the Deity. As the belief in external things leads to scepticism, so does the conviction that our perceptions or “ideas” are themselves the real things lead us to the Deity, and, consequently, to religion. Thus Berkeley thought he

had established religion by destroying the basis of scepticism; his dialogues were directed, at the same time, against sceptics and atheists. In a word, Berkeley affirms the knowledge founded on sensuous perception, and ultimately deduces it from the Deity, as he cannot deduce it from material beings, the existence of which he denies. In this respect he has a certain affinity with Malebranche, with whom we might compare him, as we might compare Locke with Descartes. But in the main point they are opposed to each other, Berkeley denying on principle what Malebranche maintained on principle, the existence of matter external to the mind. This was the difference between the two, that precluded all agreement between them. It is said that a violent controversy with Berkeley, who visited Malebranche on his dying-bed, accelerated the death of the latter.

We have remarked in Locke the double contradiction that he denied metaphysics or ontology as the doctrine of the nature of things, and yet (though not without hesitation) pronounced certain decisions respecting the substance of the soul, of the body, and of the Deity; that, on the one hand, he doubted the existence of the human mind, and, on the other hand, maintained the existence of the Deity, which he proved from the fact of

the human mind. Thus in Locke Deism and materialism were united in a contradictory manner. Berkeley avoids both these contradictions. He converts ontology into psychology without leaving any residue; for he converts all things into sensuous perceptions. He is a decided Deist*, a decided opponent of materialism, which he refutes both on first principles and in its consequences. Here is the difference between Berkeley and Locke. The difference is not, as is commonly supposed, between idealist and realist; but the case, rightly apprehended, stands thus: Berkeley is not less but more sensualistic than Locke, and, consequently, more of a realist. And for this very reason Berkeley is less materialistic than Locke, or, rather, he is not a materialist at all. He attacks materialism, he would prevent the sensualistic philosophy from committing the gross error of degenerating into materialism,—an error that began with Locke and was carried out by

* It will be observed that Dr. Fischer uses this word as the opposite of Atheist, and not necessarily to denote a disbeliever in revelation; for such a character could hardly be predicated of Berkeley. Ambiguity might have been removed by the substitution of the word "Theist," which in ordinary parlance is supposed to be without the negative sense attached to "Deist;" but as some of the persons called "Deists" in the course of the work were so in every sense of the word, I have deemed it expedient to avoid a distinction which Dr. Fischer has not drawn.—J. O.

the French. With Berkeley sensualism takes a decided position as the antagonist of materialism; and rightly, for if all is but sensuous perception, matter — such as it is asserted to be by its philosophical advocates — is nothing but an empty thought, a mere word, since of this matter there is manifestly no sensuous perception. This view constitutes the fundamental thought, the leading idea of the whole philosophy of Berkeley. It was natural that *common sense**, which attached itself to Locke, followed in the train of materialism, and declared itself against Berkeley. Indeed, by adhering to words, there was no great difficulty in perverting Berkeley's anti-materialistic tendency into an insane idealism, that could be refuted in sport. Voltaire's wit was here quite in its element. In his eyes Locke alone was a true philosopher; but he never thoroughly understood even Locke, or he would necessarily have recognised him in Berkeley. "Ten thousand cannon-balls and ten thousand dead men," says Voltaire, "are ten thousand ideas according to the philosophy of Berkeley;"† and this he thinks is a refutation, as if Berkeley had not known and already answered such objec-

* Der gewöhnliche Verstand; literally, the "ordinary understanding."—J. O.

† Philosophical Dictionary, article "Corps."

tions. Voltaire should tell us what is not perceptible in a single cannon-ball; then he will have confuted Berkeley. We will dispense with the ten thousand.

If we would arrive at the sum total of Berkeley's philosophy, it is deduced from the proposition that sensuous perceptions are things, which proposition is itself no more than the conclusion and final result of sensualism. If perceptions are things, it follows that all human knowledge is, in truth, empirical self-knowledge, that in all cases we only experience our own given state, and that thus all experience can merely be self-experience. Berkeley has done more than establish this fact. If knowledge altogether is no more than experience, as Bacon has said, if all experience is no more than sensuous perception, as Locke has said, we must then conclude, with Berkeley, that we know nothing but our own impressions, that our impressions are the things themselves, and that, therefore, the knowledge of things, if we rightly investigate the matter, is no more than a knowledge of ourselves, or, more strictly speaking, experience of ourselves. Given facts constitute all that we know. Our knowledge is therefore experience; and Kant very correctly decided that Berkeley's "idealism" was of an empirical kind, and that Garve understood neither this philosophy

nor the Kantian, as he could not comprehend the difference between the two. The facts that we experience are our own perceptions, but not our creations; they are the work of the Deity, and therefore amount, in truth, to a miracle. Thus human experience, after the loss of external things, becomes an incomprehensible fact, like life, in the sense of the "Occasionalists." If philosophy will not stop for ever at this point, it must doubt the miracle, and thus destroy the security of human knowledge on its last foundation.

V. THE SCEPTICISM OF HUME.

Hume deduces the negative sum total of the English philosophy as it has existed from the time of Bacon. He preserves every result of his predecessors; only he will not, like Berkeley, make good the last *deficit* of philosophy by means of religion, but sets it down to the account of the human faculty of knowledge. Hume is convinced, with Bacon, that all knowledge must be experience; with Locke, that all experience consists of sensuous perceptions; with Berkeley, that sensuous perceptions are the sole objects of our knowledge. Therefore, concludes Hume, all human knowledge consists simply in this, that

we perceive certain impressions in ourselves. Where, then, is its objectivity? where its necessity? And if human knowledge is deficient in these two characteristics, where is this knowledge itself?

1. THE OBJECTS OF KNOWLEDGE.

All our representations, according to Hume, are either sensuous impressions or the copies that these have left. They are only distinguished in degree, accordingly as they are stronger or weaker, more or less lively. The liveliest are the impressions themselves; the weaker are the thoughts or "ideas." The impressions are the originals, from which the "ideas," without exception, are deduced. There is no "idea" that did not originate from an impression; this decides Hume as a genuine philosopher of the stamp of Locke. Consequently the "idea" is related to the impression, as the copy to the original. Hence the explanation of an "idea" consists in showing the impression of which this "idea" is a copy, and which is consequently the original of the "idea." Our impressions are the originals of all our representations; thus decides Hume as one who has turned Berkeley's investigations to his own advantage. Whether our impressions have external things for

their own originals, is a question with which Hume is but little concerned; for, supposing there are such originals, a knowledge of them would only be possible if clear representations — that is, clear impressions — of them existed in ourselves. But how can we know this? We can only know it by means of an impression, and there is none that decides on the clearness of an impression, or the relation between an impression and a thing. In every case, therefore, human nature lacks the criterium which alone secures the objectivity of our “ideas.”

If, therefore, there is any knowledge, its objects are only “ideas,” which themselves are nothing but copies of impressions; thus we only comprehend our impressions, not the objective nature of things. In this sense, there is no objective knowledge. Thus is scepticism already half-expressed. It follows, as a matter of course, that there is no knowledge of the super-sensual. The super-sensual makes no impression upon us; therefore we have no knowledge of it. In this sense all metaphysics is an impossible science.*

2. MATHEMATICS AND EXPERIENCE.

It is thus established that we know nothing but our own ideas, which are based upon impressions.

* Compare “Enquiry concerning the Human Understanding,” i. and ii.

But our own “ideas” only constitute knowledge when we connect them, and perceive their agreement or disagreement with each other. All knowledge is a *necessary* connection of “ideas.” Now, what is necessary? That which must be as it is; that of which the contrary is impossible; that which cannot be contradicted. The “proposition of identity” which declares that a thing is what it is, and according to which all the attributes (Merkmale) that it has, and the attributes of these attributes, belong to it—this proposition cannot be contradicted. Therefore those “ideas” are necessarily connected, of which one is contained *in* the other, or can be deduced *from* the other. Therefore every judgment is necessary which, like the “proposition of identity,” is founded on the mere analysis of an “idea;” every connection of “ideas” is necessary that is attained by mere syllogistic deduction (Schlussfolgerung). Such are the judgments and conclusions of mathematics. The judgments of mathematics are analytical*; their conclusions are syllogistic; the knowledge belonging to them is demonstrative.†

On the contrary, experience judges otherwise than mathematics with respect to nature and

* This, it is scarcely necessary to state, is given as the opinion of Hume. Kant has proved that mathematical judgments are not analytical, but synthetical.—J. O.

† Enquiry concerning the Human Understanding, iv.

history. It combines different facts, different "ideas," of which one is not contained in the other; of which, therefore, one cannot be deduced from the other by analysis, but is added to it by synthesis. Is there, then, a necessary synthesis in experience? Our "ideas," according to Hume, are combined or associated in three ways,—by similarity, by contiguity (or a connection in time and space), and lastly by causality, or the connection of cause and effect.*

Of these three means of combination, causality alone lays claim to the character of necessity; for it is obvious that "ideas" which are only similar, or contiguous with regard to space or time, are not necessarily connected so that one must necessarily follow from the other. The only question that arises is, whether causality is a necessary connection. To this question the whole force of Hume's investigation is directed. So much is established, that all judgments expressive of knowledge are either analytical or synthetical. The pure judgments of the reason† and mathematical judgments are analytical; the judgments of experience are synthetical, and their synthesis consists in causality. Now, is this synthesis necessary?

* Enquiry concerning the Human Understanding, iii.

† Such as the propositions of identity and contradiction.—J. O.

3. EXPERIENCE AS A PRODUCT OF CAUSALITY.

The causal connection of "ideas" is necessary, if it is not susceptible of contradiction. It is not susceptible of contradiction, if, by the mere analysis of the "idea" A, we discover that A is the cause or power that affects B. But, however thoroughly we may analyse A, we shall never find in it either B itself, or the power which A exercises upon B. B is *not* contained in A; the effect is not contained in the cause; the power of A is not contained in the "idea" of A. Thus the effect can never be deduced from the cause, or—in other words—the causal connection of different "ideas" is not discovered by mere logical deduction; consequently, not by pure reason. Let us take, for instance, the "idea" of fire. The mere analysis of this "idea" will never explain to me the effect of fire upon wood, will never show me the power and influence of fire upon other things. If I take the "idea" of a ball, I cannot, by any process of logical deduction from this "idea," discover what motion the ball will communicate to another ball, with which it comes into collision. And so it is in every case. Thus the relation between cause and effect is not unsusceptible of contradiction; for it is not a relation of

identity. Hence causality is no conception of the reason, or — what is the same thing — is not *à priori*. There is no syllogistic deduction that will lead us from the cause A to the effect B; for syllogisms are impossible without a middle term. Where is the middle term between cause and effect? Where is the middle term between an experience and a similar experience? *

Nevertheless we require the causal connection in all our empirical judgments. From causes we constantly infer effects; from similar causes, similar effects. On the idea of causality is based all the knowledge we derive from experience. Now, upon what is this idea based? As it is not *à priori*, it must be based upon a *datum à posteriori*. But upon what *datum*? All “ideas,” without exception, are based upon sensuous impressions, of which they are the copies. There is no “idea,” the original of which was not an impression. What, then, is the impression of which the idea of causality is a copy? * This question touches the focus of Hume’s problem.

Every impression is a fact that we perceive. But the connection between facts we do not perceive. We see lightning, and we hear thunder, but not the influence that connects them, not the power by which the first phenomenon pro-

* Enquiry concerning the Human Understanding, iv.

duces the second. We experience the effect, but not the efficiency, the cause, the power. We now feel a disposition to a certain "idea;" then this "idea" arises in our minds; then follows a movement of our bodies. But the power itself by which the will produces the "idea" in the mind, and motion in the body, remains concealed from us. Of this power there is no impression, and therefore no "idea." Thus there is no impression the copy of which could be the idea of causality. This is the great difficulty discovered by Hume—the difficulty which renders the idea of causality dubious. Every "idea" requires an impression, to which it may be referred as a copy to an original. But there is no impression, either internal or external, of which we could say, "Look, this is the original of the idea of cause—of causality!" Thus this idea, on which all our empirical knowledge depends, becomes a veritable riddle. It cannot be found by mere reason; neither, it seems, can it be found by means of an impression. It is not *à priori*; neither, it seems, is it *à posteriori*. Whence then does it come?

Herein consists the dilemma. We must either give up as impossible, and regard as incomprehensible, the whole of our empirical knowledge together with causality, or we must deduce this idea from an impression. But this impression is

nowhere given. If, therefore, there is any such impression at all, it must arise gradually,—must be formed from the impressions that are given. How is this possible?

4. CAUSALITY AS A PRODUCT OF EXPERIENCE.—CUSTOM AND FAITH.

Granted that the impression A is followed by the impression B, we find that in this single instance of succession two facts are associated. They are associated, but not (necessarily) connected. They would be so connected if B were attached to A in such a manner that it would follow from A as a necessary consequence. Now, no one can arrive at the conclusion, that what has happened once will happen always. But suppose the same succession is repeated, that the impression A, as often as we receive it, is followed by B, then the transient association becomes a permanent association. Through this permanent association which we experience in our impressions, we gradually become accustomed to pass from the impression A to the impression B, so that when the former takes place, we expect the other; that is to say, we expect that B will follow A, because it has always followed it to the present moment. From the transition from one “idea” to the other arises, by a continual repetition of the same succession, an habitual transition. What has appeared merely

associated in a single case, appears necessarily connected when it is found in many similar cases ; but this is merely because we have grown accustomed to the association.* This habit, like all habits, consists merely in an often-repeated experience. We have so often observed one impression or fact succeed another, that our imagination is involuntarily determined, when we receive one impression, to expect the other—is compelled to pass from A to B. I find myself involuntarily determined ; that is to say, I feel : every habit is based upon a feeling. This feeling is likewise an impression, — not one that is immediately given, but one that is gradually produced ; and this impression, this feeling, is the original, of which the idea of causality is the copy. By dint of this feeling I can indeed never know or demonstrate the connection between two facts ; but I *believe* in the connection,—I expect, by an involuntary feeling, by a sort of instinct, that if one fact occurs, the other will not be wanting,—I believe that one is a consequence of the other. This faith is not evident and demonstrative, like a deduction of the reason ; but it leads to the conclusions of our experience, and forms the ground of all empirical certainty.†

* Enquiry concerning the Human Understanding, vii. 2.

† Ibid. v. Compare vii. 2.

Thus does Hume solve his problem. All human knowledge is either demonstrative (as in the case of mathematics) or empirical. All empirical knowledge consists in the causal connection of facts. The idea of causality is founded on a belief, this belief upon a feeling, this feeling upon a habit, which itself consists in nothing else than an often-repeated experience. Consequently, there is no knowledge that is objective and necessary. None that is objective, for the objects of our knowledge are merely our impressions and the "ideas" copied from them; none that are necessary, for the ground of our knowledge is not an axiom, but—an exercise of faith. Here is a perfect expression of scepticism. The doubt respecting knowledge arises from the perception that all the inferences of our experience are nothing but matters of faith; it is upon this faith that the doubt is founded. Hume himself calls his theory "moderate scepticism," because he does not design to alter anything in human knowledge (so far as it is experience), but merely to enlighten our views respecting it.* He will only show us the guide that we are practically to follow throughout the whole of our knowledge. Hume is well aware that "nature is stronger than doubt," that mankind will never cease to seek experiences, to draw

* Enquiry concerning the Human Understanding, xii. 3.

inferences from them, and to regard these inferences as stable truths by which they can regulate their actions, however acutely the sceptic may show that they are without foundation.* He would neither lessen nor depreciate the genuine treasure of human knowledge, but merely instruct us as to the means by which the treasure was acquired, and can also be really increased. He enlightens us as to the true ground of our knowledge. His scepticism destroys nothing but a supposed ground, an imaginary faculty, that can never lead us to fruitful and practical knowledge, but only to apparent truths and fallacious "ideas."

These are the limits set to human knowledge by the scepticism of Hume. Beyond experience there is no knowledge whatever; and even within the region of experience our knowledge extends only so far as custom. Within the region of habit there is no final or perfect certainty, but a mere proximate subjective certainty—or probability. Habit does not prove; it only believes. That which is beyond habit is still possible; that to which we are accustomed is not proved—is not so necessary that its opposite is impossible.†

"Custom," says Hume, "is the great guide of human life."‡ Hence, from his point of view, he

* Enquiry concerning the Human Understanding, xii. 2.

† Ibid. vi.

‡ Ibid. v. 1.

could rightly assert that he was opposed not to the conclusions of "common sense" (*das gewöhnliche Bewusstseyn*), but rather, on the contrary, confirmed its decrees by the most immediate formula. For what does common sense desire more than to think and act according to custom? And so far is Hume from depriving it of the power to do this, that his scepticism leaves nothing but custom as the basis of human thought and action. Man has always been regulated by custom. Hume vindicates the power of custom, shows in what its right consists, proving that men have not only a right to think according to custom, but that, in fact, this is their only right. What Schiller makes Wallenstein say with heroic contempt, exactly expresses the sober conviction of Hume: —

"What we have most to dread
Is common-place, perpetual yesterday,
That ever warning, ever still returns;
Potent to-morrow, through its force to-day.
For man of common-places is compact,
And to his nurse the name of custom gives." *

This nurse is called by Hume the great guide of human life; and with him it forms at the same time the defined boundary of human knowledge.

If there is no knowledge beyond experience, there is, at the same time, no theology but

* Death of Wallenstein, i. 4.

that which is based upon supernatural revelation. Hume is of the same opinion with Bacon and Bayle, that religious faith and human reason are 'reciprocally exclusive. There is, therefore, no rational or demonstrative science whatever, except mathematics. All the rest of human knowledge is experience, of which custom is the only guide. "When," says Hume, at the conclusion of his Enquiry, "we use our libraries, persuaded of these principles, what havoc must we make! If we take in our hand any volume of divinity or school metaphysics, for instance, let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it, then, to the flames; for it can contain nothing but sophistry and illusion."*

If we compare Hume with Berkeley, we must say that he owes half his scepticism to the latter; namely, so much as affirms that human knowledge does not extend beyond our impressions, that of this knowledge "ideas" are the only possible objects. Hence he says, in a note to his Enquiry, "Most of the writings of that very ingenious author (Berkeley) form the best lessons of scepticism, which are to be found either among

* Enquiry, xii. 3.

the ancient or modern philosophers, Bayle not excepted."* But Berkeley declared that orderly experience was a product of the Deity, whereas Hume regards it as a product of human custom. At this point his scepticism is perfected and formulised. It destroys nothing but the illusion which regards that which is only regulated by custom as regulated by fixed laws. To customs there are exceptions; to laws there are none. There are many things extra-ordinary, none extra-legal.

If we compare Hume with Locke, we must say that his view of the origin of our "ideas" is equally sensualistic, and similarly negative as to the possibility of metaphysics. Their coincidence is in the idea of substance, which they both assert to be a mere void; their difference is in the idea of causality, to which Locke gives a real, Hume merely a subjectively human value.

If we compare Hume with Bacon, we must say that he critically established the limits of experience, which the action-loving intellect of Bacon himself had overstepped. And what particularises Hume is the distinction that he makes between experience and mathematics as different *kinds* of human knowledge.† The objects of

* Enquiry, xii. 2.

† Kant agrees to this distinction, but he changes the criterium.

mathematics are magnitudes, those of experience are facts; the mathematics judge solely by analysis, experience solely by synthesis. Hence there is demonstrative certainty in mathematics, whereas experience merely attains probability or moral certainty; for in the one case conclusions are drawn by reason, in the latter they are the result of faith in habitual association.

5. CUSTOM AS A POLITICAL POINT OF VIEW.

From the reasons stated above, Hume was necessarily a sceptic in philosophy; for a knowledge based merely upon custom can only have temporary, and cannot arrive at absolutely valid truth. But, with Hume, custom is not merely the ground upon which our empirical knowledge is to be explained, but also the "guide of human life." So far as life is ruled by custom, it comes within the scope of Hume's point of view. In philosophy principles govern; in life, custom. Our whole life is, as Göthe's Egmont says, the "sweet habit of existence." Even the natural movements of the body must become habitual by repeated practice, in order to be involuntary and

According to him, the judgments of mathematical science and experience are both synthetical, but the former judges according to intuition, the latter according to logical conception.—

Author's note.

free from effort. Thus healthy eating and drinking, walking and standing, under the guidance of natural instincts, become habitual functions by repeated practice; thus also is it with reading and writing, under the guidance of education. We must first accustom ourselves simply to live; then we must accustom ourselves to live in a particular manner. Our life and our cultivation are results of our habits; and these are the results of oft-repeated experience. Custom alone produces our morals; and these produce the common public life of man, and its constitution. An alteration of constitution is an alteration of morals and customs. But customs arise gradually, and therefore must be gradually altered. If custom is slowly progressive, so likewise must be the disuse of custom. Here nothing arises suddenly by a mere resolution of the will, a decree, an arbitrary agreement. Human customs and morals in their slow, gradual metamorphosis, — these are the historical processes of cultivation. He who does not understand the nature of customs and of morals habitually acquired, he who does not take into account this power in human life, is incapable of understanding history, much more of making it. He does not understand mankind, much less will he be able to govern it. Every sudden "enlightenment," every sudden revolution in a state,

is thoroughly repugnant to history. A faith and a state cannot be demolished, any more than they can be produced, by a single blow. We are made acquainted with the anti-historical view of the Anglo-Gallic "enlightenment." Among all the philosophers of this "enlightenment," David Hume is the only one whose views approximate to the nature of historical life, the only one whose thought is not repugnant to history, because he understood that human life is governed, not by principles and theories, but by customs. The same principle which made him a sceptic in philosophy, made him an historian fitted to judge of men and states, a circumspect politician. He thought historically, because he depreciated the value of philosophical principles. In him the philosophical sceptic and the political historian constitute one person. If we would have a palpable instance of the difference, in this respect, between the great sceptic and the Anglo-Gallic "enlightenment," we need only compare the historical works of a Hume with those of a Voltaire.

But the consonance of the views of Hume with history is most plainly apparent with respect to one particular point, in treating of which the other philosophers of his age had established a dogma repugnant to history. Nothing shows how

far the so-called "enlightenment" was removed from all historical experience, so much as the theory of a contract, by which an explanation of the state had been attempted. The state and the institutions of public life have an historical origin; but such a contract as is taught by a Hobbes, a Locke, a Spinoza, or a Rousseau, has never existed in the reality, where they look for it. Every one can see that the contract, to be valid, presupposes a human community, or at least a form of existence similar to a state. Hume is the most open adversary of the contract theory, although he also would explain the state on natural grounds. He attacks the social contract theory, as propounded by Rousseau and Locke.* He sees that such a theory is opposed to all historical experience and possibility, and is, in fact, no more than a creation of the philosophical brain. Before men could have been united by an express contract, they must have been already united by necessity. It was a result of necessity, without any contract, that one commanded and the rest obeyed. "Each exercise of authority in the chieftain," says Hume, "must have been particular, and called forth by the present exigencies of the case. The sensible utility resulting from

* Compare "Hume's und Rousseau's Abhandlungen über den Urvertrag," by G. Mertal. (Leipzig, 1797.)

his interposition, made those exertions become daily more frequent; and this frequency gradually produced an habitual, and, if you please to call it so, an arbitrary and therefore precarious acquiescence in the people."* In the place of a contract, Hume puts custom. He gives precisely the same explanation of the state as of knowledge, basing the former upon habitual obedience, as he has based the latter upon habitual experience. Custom attaches men to the form of state to which they have become accustomed, and secures its duration against any violent attack. The continuation of Wallenstein's speech is uttered in the very spirit of Hume:

"Woe to the impious hand that dares to touch
The dear old stock his fathers have bequeath'd !
There is a sanctifying power in *years*;
What age has render'd grey, appears divine.
Be in possession, then the right's thine own,
And will be honor'd by the multitude."

A principle repugnant to history led to consequences equally repugnant. If the state was the product of a mere arbitrary act of the human will, an arbitrary will would have a right to annihilate it at a single blow. The contract theory led to a revolutionary theory. If it was once established that the state had arisen from a *tabula*

* Essay, "Of the Original Contract."—J. O.

rasa by means of a contract, it seemed possible, and even just, to bring it back to a *tabula rasa* by means of a new contract. If one contract produced civil order, another produced civil revolution. The contract theory of a Hobbes became a revolutionary theory in the mind of a Rousseau. The anti-historical mode of thought was followed by an anti-historical mode of action. The moment arrived when the given state was actually reduced to a *tabula rasa*; the French Revolution came to an incurable rupture with history; the *Contrat Social* became the gospel of the Convention; the theoretical Rousseau was followed by the practical Robespierre, in whom the anti-historical mode of action became not only barbarous, but even grotesque.

Hume attacks the revolutionary theory, together with the contract theory, on natural-historical grounds. Here his arguments against Rousseau are most felicitous: "Would these reasoners but descend into the world, they would meet with nothing that in the least corresponds to their ideas. . . . In reality, there is not a more terrible event than a total dissolution of government, which gives liberty to the multitude, and makes the determination or choice of a new establishment depend upon a number, which nearly approaches to that of the body of the

people; for it never comes entirely to the whole body of them. Every wise man then wishes to see at the head of a powerful and obedient army a general who may speedily seize the prize, and give to the people a master, which they are so unfit to choose for themselves. So little correspondent is fact and reality to these philosophical notions."* If the revolution really became a fact, and converted a Rousseau into a Robespierre, Hume foresaw what he would desire—namely, a Napoleon. If we compare Hume with Rousseau, how striking is the contrast, in spite of many points of resemblance! They both stand on the very threshold of the French revolution; they are both in opposition to the dogmatic philosophy of their age and their nations, they both seek to reduce human knowledge to a natural faith, and to purify it in conformity with nature. This common opposition to the same adversary brought them together. They became friends; and Hume afforded the persecuted Rousseau a hospitable asylum in England. A difference afterwards arose; and they became enemies, less from any fault in Hume than from Rousseau's unhappy suspicious mind, which had grown into a fixed temperament. They were opposed to each other, one being a sceptic, the other a visionary

* "Of the Original Contract."

Utopian. Rousseau desired an ideal state, which Hume sneered at as a man of the world, and attacked as a politician. Rousseau advanced a revolutionary theory, which Hume opposed with every argument and every feeling. Where are their spirits to be found in the time of the actual revolution, which neither lived to see? They could not be separated by a wider chasm. Robespierre studied Rousseau's *Contrat Social*; and Louis XVI. read Hume's "History of the Stuarts."

Political theorists do not take into consideration the historical conditions with which we are interwoven, and from which none of us can or should—least of all in practice—fully abstract himself. We have a sort of historical pre-existence in our forefathers. As Socrates excellently says, he is obliged to obey the laws of his country; for he has already pre-existed in his ancestors as a citizen of Athens. The empirical philosophers, who, least of all, should have straitened historical experience, are most in opposition to it. The *tabula rasa* of which they speak, exists neither within ourselves, nor externally to ourselves. In their theories of the state, they presuppose men who find themselves in a position to make a state for the first time, and come directly out of the hand of nature as a fresh generation. This hypothesis is

false. Those men never existed; if they ever did, there would be no history. The philosophers who maintain the contract theory, abstract from history; this is their pervading fault, which is well understood by Hume. He excellently says, "Did one generation of men go off the stage at once, and another succeed—as is the case with silkworms and butterflies,—the new race, if they had sense enough to choose their government, which surely is never the case with men, might voluntarily and by general consent establish their own form of civil polity, without any regard to the laws or precedents which prevailed among their ancestors. But as human society is in perpetual flux, one man every hour going out of the world, another coming into it, it is necessary, in order to preserve stability in government, that the new brood should conform themselves to the established constitution, and nearly follow the path which their fathers, treading in the footsteps of theirs, had marked out to them. Some innovations must necessarily have place in every human institution; and it is happy when the enlightened genius of the age gives them a direction to the side of reason, liberty, and justice. But violent innovations no individual is entitled to make. They are even dangerous to be attempted by the legislature. More ill than good

is to be expected from them."* Hume is no enemy of "enlightenment" in itself; he is only an enemy of that ordinary anti-historical enlightenment that must necessarily be of an artificial kind, and which, far from educating men, treats them as plants in a hot-house. This non-educational and anti-historical "enlightenment," which has been called not inaptly "spurious enlightenment,"† is attacked by Hume from a far higher and more enlightened point of view, which approaches historical thought. For the same reason our Lessing attacked the anti-historical "enlightenment." On this point he would have nothing in common with the Wolfians, and took no interest in the experiments of Joseph II., which he saw were premature. This is the "Something that Lessing said,"‡ which Jacobi willingly heard.

* Essay, "Of the Original Contract."

† "Aufklärerei." This modification of the word "Aufklärung" gives it a contemptuous turn; but "Aufklärung" itself is used with scarcely less contempt by writers opposed to the philosophy of the eighteenth century.—J. O.

‡ "Etwas, das Lessing sagte," is the title of a treatise by Jacobi commencing with these words:—"I once heard Lessing say, that all that had been maintained by Febronius, and the partisans of Febronius, would be a mere unblushing flattering of princes; for all their arguments against the rights of the pope would be either no arguments at all, or they would tell with double or triple force against the princes themselves." On these words the treatise is based. Justinus Febronius is the pseudonym of Johann Nicolaus von Hontheim, whose work on the State of the

While English philosophy, in the person of Hume, perceives that the "enlightenment" belonging to it leaves history out of consideration, and therefore fails, the same view is taken by German philosophy in the person of Lessing, after it has gone through a certain period of anti-historical thought, most inconsistent with its original foundation. While English philosophy, in the person of Hume, arrives at the conclusion that the ground of all our knowledge is faith and feeling, and turns this conclusion to the advantage of scepticism, the same result is arrived at by Hamann, Herder, and with the greatest clearness by Jacobi, and turned to the advantage of religion. The English sceptic agrees in one point with these German genius-thinkers*,—they are all philosophers of faith; or we should rather say that Hamann, Herder, and Jacobi, as philosophers of faith, agreed with Hume. It was they who revered the sceptic, in the cause of religion; they joined with him against the dogmatic philosophy, against the anti-historical "enlightenment," against an insipid and impracticable rationalism. Here the English and German philoso-

Church, and the Lawful Authority of the Pope, published in 1763, made a considerable sensation throughout Europe.—J. O.

* "Genie-denker." This expression, I conceive, is intended to denote those thinkers whose thoughts are not expressed in a formal system. At all events, this interpretation will fit Hamann, Herder, and Jacobi.—J. O.

phers shake hands with each other, that they may both in common bring this dogmatic period to a conclusion, and prepare a new epoch.

VI. HUME'S CONTRADICTION, AND KANT'S SOLUTION.*

If we state the sum total of Hume's philosophy, we find that he has denied metaphysics, distinguished mathematics from experience (as analytical from synthetical knowledge), and so explained the latter that its judgments must, without exception, cease to be accepted as universal and necessary. But how did Hume explain experience? By the idea of causality, which connects our impressions. And how did he explain this idea? By custom. And how this? By oft-repeated experience. Thus Hume explains experience by — experience. He presupposes what he has to explain; he therefore thinks dogmatically, and commits the very fault which the sceptics of antiquity had remarked in the dogmatic philosophers; his explanations are in an

* My intention here is only to show the point where the English philosophy results in the Kantian. The dependent position of Kant, with respect to the English philosophy, before he went beyond the latter, I shall *not* investigate here. Such an investigation would be foreign to my theme, and belongs to an account of the Kantian philosophy, to which I am devoting an especial work.—*Author's Note.*

obvious circle, exactly corresponding to the figure which the ancient sceptics called “*διάλληλος*.” A circle explains nothing. Hume thus far has not explained experience; he has not solved the problem, but only made it clear; but, at the same time, he has made it so very clear, has defined it so sharply, that it could not be avoided by any independent thinker who might follow him. Nay, it could not but occur to the philosophical mind that two points were made obvious: one, the necessity of solving the problem; the other, the impossibility of Hume’s solution. Hume has plainly shown the next goal that philosophy must pursue, and also, by his own example, the road that will *not* lead to it. He, who understood the problem, had necessarily to find a new road to its solution. This road must manifestly be different from those which had been taken by the English philosophy since the time of Bacon, and by the German since Leibnitz. Whoever finds the right starting-point for this goal, makes a new epoch in the history of philosophy. The goal is perceived, the starting-point is found, the epoch is made, by a German philosopher trained in the Leibnitz-Wolfian school,—one in whom the German mind is combined with the English. This philosopher is Immanuel Kant. His work is an offspring of the German and English philosophies,

which in the mind of Kant came into fruitful contact. It is remarkable enough that in the very origin of this man the two nationalities were united. His family had emigrated from Scotland; and thus, through his forefathers, he was a countryman of Hume, whose investigations he understood and appropriated to himself, more than those of any other philosopher. By these investigations he saw the problem at which philosophy had arrived; and at the same time he perceived that by Hume's process nothing was explained. Experience, which Bacon had made the instrument of philosophy, had now become its problematic object. Hume, instead of explaining it, had presupposed it, had made experience itself the ground on which experience was to be explained. At this point he had remained dogmatical, like all the rest of the philosophers. Locke intended to be a sensualist; his defect was, that he was not sensualistic enough; and this was discovered by Berkeley. Hume intended to be a sceptic; his fault was that he was not sceptical enough; this was discovered by Kant. If Hume had been more sceptical, he would have explained experience without presupposing it, he would at this decisive juncture have divided and freed himself from the dogmatical philosophy; in a word, he would have been *critical*.

VII. BACON AND KANT.

Kant was more sceptical than Hume; he discovered the critical point of view, and thus brought about the crisis that led to a new epoch in the history of philosophy. The process was really very simple. He took exactly the same position with regard to experience and human knowledge that had been taken by Bacon with respect to nature. He explained the facts of experience as Bacon had attempted to explain the facts of nature. To explain a fact is to show, under all circumstances, the conditions under which it occurs. These conditions must, under all circumstances, precede the fact, and must be sought before the fact itself. Kant sought the conditions of an empirical knowledge, not *above* it, like the German metaphysicians, nor *in* it, like the English sensualists, but *before* it; he neither with the one party presupposed knowledge in innate ideas, nor with the other presupposed experience in mental impressions and their repeated connection. He analysed the fact of experience, as Bacon analysed natural phenomena. As Bacon had sought the power of nature by which things are effected and formed, so did Kant seek the powers or faculties of knowledge,

which constitute experience. The conditions which, as necessary functions, precede experience, he called "transcendental," and by this word designated both his philosophy and the faculty which he was compelled to assume as prior to all knowledge, or which he discovered to be prior to all knowledge in man. Thus that which Kant supposed to be prior to knowledge is not itself knowledge, but consists of the knowledge-forming faculties, that in themselves are empty. These pure faculties are called by Kant the "pure reason." This is no *tabula rasa*, like the human mind according to Locke, nor is it an aggregate of "innate ideas," like those from which Leibnitz and Wolf sought to deduce knowledge; but it consists of powers that constitute man *as man*, — that essence of humanity, which no one discovered before Kant. It was a new discovery, the greatest that philosophy has made, and one, moreover, which it will neither uproot or surpass.

Bacon sought the right road to find the necessary laws of nature, and he discovered empirical philosophy. Kant sought the right road to discover the necessary laws of experience, and discovered transcendental or critical philosophy. Bacon asked how and by what means natural phenomena are possible. Kant asked how and by what means are physics, mathematics, and me-

taphysics possible, and he solved his questions in the "Critique of Pure Reason," the "Novum Organum" of a new philosophy. To this work German philosophy, rendered fruitful by English philosophy, gave birth. Kant was a dogmatist before he became a critical philosopher; and he accomplished the transition from one period to the other under the influence of the English philosophy, especially that of Hume. Starting from the Leibnitz-Wolfian philosophy, and passing through that of Hume, he arrived at his own. The first person who reviewed the "Critique of Pure Reason" explained Kant's philosophy as an Idealism after the fashion of Berkeley. Hereupon Kant explained his own work in his "Prolegomena to all future Metaphysics," and said, in reply to the false comparison, that David Hume, rather than Berkeley, was the philosopher who, many years before, had awakened him out of his dogmatic slumber, and had given a totally new direction to his investigations in the field of speculative philosophy. Mindful of this tendency, Kant took for the motto of his "Critique of Pure Reason" the words of Bacon, from the preface to the "Novum Organum"—words that announce the great fact of which the two reformers of philosophy are conscious.

"Of ourselves we say nothing; but for the

matter of which we treat, we desire men not to regard it as an opinion, but as a necessary work, and to hold it for certain that we are laying the foundation, not of any sect or theory, but of that which will profit and dignify mankind. In the next place, we desire that they should fairly consult the common advantage, and themselves participate in the remaining labours. Moreover, that they should be strong in hope, and not pretend or imagine that our Instauration is an infinite work, surpassing human strength, since it is, in reality, an end and legitimate termination of infinite error.”*

* This is rather a condensation than an exact quotation.—J. O.

APPENDICES.

APPENDICES.

A.

(Referred to at p. 87).

The entire passage in Spinoza's letter, which is the second in the collection of Epistles, is as follows:—De Bacone parum dicam, qui de hac re admodum confuse loquitur et fere nihil probat: sed tantum narrat. Nam primo supponit, quod intellectus humanus præter fallaciam sensuum sua sola natura fallitur, omniaque fingit ex analogia suæ naturæ et non ex analogia universi, adeo ut sit instar speculi inæqualis ad radios rerum, quod suam naturam naturæ rerum immiscet, &c. Secundo, quod intellectus humanus fertur ad abstracta propter naturam propriam, atque quæ fluxa sunt, fingit esse constantia, &c. Tertio, quod intellectus humanus gliscat, neque consistere aut acquiescere possit; et quas adhuc alias causas adsignat, facile omnes ad unicam Cartesii reduci possunt; scilicet, quia voluntas humana est libera et latior intellectu, sive, ut ipse Verulamius (Aph. 49) magis confuse loquitur, quia intellectus

luminis sicci non est; sed recipit infusionem a voluntate. (Notandum hic, quod Verulamius sæpe capiat intellectum pro mente, in quo a Cartesio differt.) Hanc ergo causam, cæteras ut nullius momenti parum curando, ostendam esse falsam; quod et ipsi facile vidissent, modo attendissent ad hoc, quod scilicet voluntas differt ab hac et illa volitione, eodem modo ac albedo ab hoc et illo albo, sive humanitas ab hoc et illo homine; adeo ut æque impossibile sit concipere, voluntatem causam esse hujus ac illius volitionis, atque humanitatem esse causam Petri et Pauli. Cum igitur voluntas non sit, nisi ens rationis, et nequaquam dicenda causa hujus et illius voluntatis; et particulares volitiones, quia, ut existant, egent causa, non possint dici liberæ, sed necessario sint tales, quales a suis causis determinantur; et denique secundum Cartesium, ipsissimi errores sint particulares volitiones, inde necessario sequitur, errores, id est particulares volitiones, non esse liberas, sed determinari a causis externis; et nullo modo a voluntate, quod demonstrare promisi, &c."

The complete passage in Bacon (Nov. Org. I., 49), cited by Dr. Fischer, is as follows:—"Intellectus humanus luminis sicci non est; sed recipit infusionem a voluntate et affectibus, id quod generat *ad quod vult scientias*. Quod enim mavult homo verum esse, id potius credit."

B.

(Referred to at p. 125).

Göthe's characteristic of Bacon, in the "Theory of Colours," is as follows:—

"Generally we estimate the works of an eminent man by the effect they have produced on ourselves, either by advancing or retarding our cultivation. By such self-experiences do we pass judgment on our predecessors; and from this point of view may that be regarded, which we venture to say respecting an admirable genius, who appears to us at the close of the sixteenth and the commencement of the seventeenth century.

"What Bacon of Verulam has bequeathed to us can be divided into two parts. The first is the historical part, which is chiefly in a disapproving spirit, pointing out previous deficiencies, revealing *lacunæ*, and finding fault with predecessors. The second part we would call the instructive—didactically dogmatic, urging to new labours, exciting, promising.

"In both these parts there is for us something that is attractive and something that repels, as we shall now more clearly define. In the historical part, we are pleased with the acute insight into all that has gone before, and more especially by

the great clearness with which the obstacles to science are brought forward. We are pleased also by the detection of those prejudices that generally and particularly hinder the further progress of mankind. But, on the other hand, most revolting to us is Bacon's insensibility to the merits of his predecessors, his want of reverence for antiquity. For how can one listen with patience when he compares the works of Aristotle and Plato to light planks, which, because they consist of no solid material, may have floated down to us on the flood of ages? In the second part, we are displeased by his requisitions, which are loosely made, and by his method, which is not constructive, complete in itself, or directed to a fixed point, but promotes isolation (among the departments of science). On the other hand, we are highly gratified by his encouragements, his incitements, and his promises.

“It is from the gratification he produces that his fame has arisen; for who does not love to hear narrated the defects of former times? who does not feel confidence in himself? who does not place a hope in posterity? On the other hand, that which is displeasing is indeed observed by the more acute; but it is treated tenderly, as in fairness it ought to be.

“From these considerations we venture to explain