whole position was stated with more urbanity and culture, and was supported, by Carneades in particular, by argumentation at once more copious and more acute. It seems also true that the Academics were less overborne than the Pyrrhonists by the practical issue of their doubts (imperturbability); their interest was more purely intellectual, and they had something of the old delight in mental exercitation for its own sake. Arcesilas or Arcesilaus (about 315–240 B.C.) made the Stoic theory of irresistible impressions (φαντασίαι καταληπτικαί) the special object of his attack. Mere irresistibleness (κατάληψις), he maintained, is no criterion of truth, since false perceptions may equally possess this power to sway the mind. He seems chiefly to have supported his position by adducing the already well-known arguments of former philosophers against the veracity of the senses, and he evidently held that by these arguments the possibility of knowledge in general was sufficiently subverted. We can know nothing, he concluded,—not even this itself, that we know nothing. He denied that the want of knowledge reduces us to inaction. Notions influence the will immediately, apart from the question of their truth, and, in all questions of conduct, probability (τὸ εὔλογον) is our sufficient guide, as it is our highest attainable standard. It is stated that Arcesilaus made his negative criticism merely a preliminary to the inculcation of a modified Platonism. But this account, though not in itself incredible, is not borne out by any evidence at our disposal. The theory of Carneades (213–129 B.C.) represents the highest development of Academic scepticism. The dogmatic system which Carneades had in view was that of Chrysippus, the Stoic, whose main positions, whether in the theory of knowledge, in morals, or in theology, he subjected to an acute and thorough-going criticism. As to the criterion of truth, Carneades denied that this could be found in any impression, as such; for in order to prove its truth an impression must testify, not only to itself, but also to the objects causing it. We find, however, admittedly, that in many cases we are deceived by our impressions; and, if this is so, there is no kind of impression which can be regarded as guaranteeing its own truth. According to his own examples, it is impossible to distinguish objects so much alike as is one egg to another; at a certain distance the painted surface seems raised, and a square tower seems round; an oar in water seems broken, and the neck-plumage of a pigeon assumes different colours in the sun; objects on the shore seem moving as we pass by, and so forth. The same applies, he argued, to purely intellectual ideas. Many fallacies cannot be solved, and we cannot, for example, draw any absolute distinction between much and little, or, in short, between any quantitative differences. Our impressions, therefore, furnish us with no test of truth, and we can derive no aid from the operations of the understanding, which are purely formal, combining and separating ideas without giving any insight into their validity. Besides this general criticism of knowledge, Carneades attacked the cardinal doctrines of the Stoic school,—their doctrine of God and their proof of divine providence from the evidences of design in the arrangements of the universe. Many of his arguments are preserved to us in Cicero's *Academics* and *De Natura Deorum*. His criticism of the contradictions involved in the Stoic idea of God really constitutes the first discussion in ancient times of the personality of God, and the difficulty of combining in one conception the characters of infinity and individuality. As a positive offset against his scepticism, Carneades elaborated more fully the Academic theory of probability, for which he employed the terms ἔμφασις and πιθανότης. Being necessarily ignorant of the relation of ideas to the objects they represent, we are reduced to judging them by their relation to ourselves, *i.e.*, by their greater or less clearness and appearance of truth. Though always falling short of knowledge, this appearance of truth may be strong enough to determine us to action. Carneades recognized three degrees of probability. The first or lowest is where our impression of the truthfulness of an idea is derived simply from the idea itself; the second degree is where that impression is confirmed by the agreement of related ideas; if a careful investigation of all the individual ideas bears out the same conclusion, we have the third and highest degree of probability. In the first case, an idea is called probable (πιθανή); in the second, probable and undisputed (πιθανὴ καὶ ἀπερίσπαστος); in the third, probable, undisputed, and tested (πιθανὴ καὶ ἀπερίσπαστος καὶ περιωδευμένη). The scepticism of Carneades was expounded by his successor Clitomachus, but the Academy was soon afterwards (in the so-called fourth and fifth Academies) invaded by the Eclecticism which about that time began to obliterate the distinctions of philosophical doctrine which had hitherto separated the schools. Cicero also, who in many respects was strongly attracted by the Academic scepticism, finally took refuge in a species of Eclecticism based upon a doctrine of innate ideas, and on the argument from the *consensus gentium*.

Later scepticism of antiquity

The later scepticism—which is sometimes spoken of as the third sceptical school—claimed to be a continuation of the earlier Pyrrhonism. Ænesidemus, though not absolutely the first to renew this doctrine, is the first of whose doctrine anything is known. He appears to have taught in Alexandria about the beginning of the Christian era. Among the successors of Ænesidemus, the chief names are those of Agrippa, whose dates cannot be determined, and the physician Sextus Empiricus (about 200 A.D.), whose *Pyrrhonic Hypotyposes*, and his work *Adversus Mathematicos*, constitute a vast armoury of the weapons of ancient scepticism. They are of the utmost value as an historical record. With Saturninus, the pupil of Sextus, and Favorinus, the grammarian, ancient scepticism may be said to disappear from history. What speculative power remained was turned entirely into Neoplatonic channels. To Ænesidemus belongs the first enumeration of the ten so-called tropes (τρόποι), or modes of sceptical argument, though the arguments themselves were, of course, current before his time. The first trope appeals to the different constitution of different animals as involving different modes of perception; the second applies the same argument to the individual differences which are found among men; the third insists on the way in which the senses contradict one another, and suggests that an endowment with more numerous senses would lead to a different report as to the nature of things; the fourth argues from the variability of our physical state and mental moods; the fifth brings forward the diversities of appearance due to the position and distance of objects; the sixth calls attention to the fact that we know nothing directly, but only through some medium, such as air or moisture, whose influence on the process cannot be eliminated; the seventh refers to the changes which the supposed object undergoes in quantity, temperature, colour, motion, &c.; the eighth really sums up the thought which underlies the whole series, when it argues from the relativity of all our perceptions and notions; the ninth points out the dependence of our impressions on custom, the new and strange impressing us much more vividly than the customary; the tenth adduces the diversity of customs, manners, laws, doctrines, and opinions among men. Ænesidemus likewise attacked the notion of cause at considerable length, but neither in his arguments nor in the

Sceptical tropes.

numerous objections brought against the notion by Sextus Empiricus do we meet with the thought which furnished the nerve of modern scepticism in Hume. The practical result of his scepticism Ænesidemus sought, like the Pyrrhonists, in ἀταραξία. He is somewhat strangely said to have combined his scepticism with a revival of the philosophy of Heraclitus; but the assertion perhaps rests, as Zeller contends, on a confusion. To Agrippa is attributed the reduction of the sceptical tropes to five. Of these, the first is based on the discrepancy of human opinions; the second on the fact that every proof itself requires to be proved, which implies a *regressus in infinitum*; the third on the relativity of our knowledge, which varies according to the constitution of the percipient and the circumstances in which he perceives. The fourth is really a completion of the second, and forbids the assumption of unproven propositions as the premises of an argument. It is aimed at the dogmatists, who, in order to avoid the *regressus in infinitum*, set out from some principle illegitimately assumed. The fifth seeks to show that reasoning is essentially of the nature of a *circulus in probando*, inasmuch as the principle adduced in proof requires itself to be supported by that which it is called in to prove. The attack made in several of these five tropes upon the possibility of demonstration marks this enumeration as distinctly superior to the first, which consists in the main of arguments derived from the fallibility of the senses. The new point of view is maintained in the two tropes which were the result of a further attempt at generalization. Nothing is self-evident, says the first of these tropes, for, if all things were certain of themselves, men would not differ as they do. Nor can anything be made certain by proof, says the second, because we must either arrive in the process at something self-evident, which is impossible, as has just been said, or we must involve ourselves in an endless regress.

Comparison of ancient and modern scepticism.

When we review the history of ancient thought, we find, as Zeller puts it, that "the general result of all sceptical inquiries lies in the proposition that every assertion may be opposed by another, and every reason by reasons equally strong—in the ἰσοσθένεια τῶν λόγων. Or, as the same thing may be expressed, what all sceptical proofs come back to is the relativity of all our ideas. We can never know the nature of things as they are, but always only the manner in which they appear to us. The criterion of the sceptic is the appearance. Not even his own proof can claim truth and universal validity: he does not assert; he only seeks to relate how a thing strikes him at the present moment. And even when he expresses his doubts in the form of universal statements they are intended to be included in the general uncertainty of knowledge" (*Phil. d. Griechen*, iii. 2, p. 58). Both Zeller and Hegel, it may be added, remark upon the difference between the calm of ancient scepticism and the perturbed state of mind evinced by many modern sceptics. Universal doubt was the instrument which the sceptics of antiquity recommended for the attainment of complete peace of mind; rest and satisfaction can be attained, they say, in no other way. By the moderns, on the other hand, doubt is portrayed, for the most part, as a state of unrest and painful yearning. Even Hume, in various noteworthy passages of his *Treatise*, speaks of himself as recovering cheerfulness and mental tone only by forgetfulness of his own arguments. His state of universal doubt, so far from being painted as a desirable goal, is described by him as a "malady" or as "philosophical melancholy and delirium." The difference might easily be interpreted either as a sign of sentimental weakness on the part of the moderns or as a proof of the limitation of the ancient sceptics which rendered them more easily satisfied in the absence of truth. It seems to prove, at all events, that the ancient sceptics were more thoroughly convinced than their modern successors of the reasonableness of their own attitude. But whether the ancients were the better or the worse sceptics on that account is a nice question which need not be decided here. It may be doubted, however, whether the thoroughgoing philosophical scepticism of antiquity has any exact parallel in modern times, with the single exception possibly of Hume's *Treatise on Human Nature*. It is true we find many thinkers who deny the competency of reason when it ventures in any way beyond the sphere of experience, and such men are not unfrequently called sceptics. This is the sense in which Kant often uses the term, and the usage is adopted by others,—for example, in the following definition from Ueberweg's *History of Philosophy*:—"The principle of scepticism is universal doubt, or at least doubt with regard to the validity of all judgments respecting that which lies beyond the range of experience." The last characteristic, however, is not enough to constitute scepticism, in the sense in which it is exemplified in the ancient sceptics. Scepticism, to be complete, must hold that even within experience we do not rationally conclude but are irrationally induced to believe. "In all the incidents of life," as Hume puts it, "we ought still to preserve our scepticism. If we believe that fire warms, or water refreshes, 'tis only because it costs us too much pains to think otherwise" (*Treatise*, bk. i. iv. 7). This tone, which fairly represents the attitude of ancient sceptics, is rare among the moderns, at least among those who are professed philosophers. It is more easily matched in the unsystematic utterances of a man of the world like Montaigne.

Scepticism in the interest of faith

One form of scepticism, however, may be claimed as an exclusively modern growth, namely, philosophical scepticism in the interests of theological faith. These sceptics are primarily Apologists. Their scepticism is not "de bonne foy"; it is simply a means to the attainment of a further end. They find that the dogmas of their church have often been attacked in the name of reason, and it may be that some of the objections urged have proved hard to rebut. Accordingly, in an access of pious rage, as it were, they turn upon reason to rend her. They deny her claim to pronounce upon such matters; they go further, and dispute her prerogative altogether. They endeavour to show that she is in contradiction with herself, even on matters non-theological, and that everywhere this much vaunted reason of man (la superbe raison) is the creature of custom and circumstance. Thus the "imbecility" of reason becomes their warrant for the reception by another organ—by faith—of that to which reason had raised objections. The Greeks had no temptation to divide man in two in this fashion. When they were sceptics, their scepticism had no ulterior motives; it was an end in itself. But this line of argument was latent in Christian thought from the time when St Paul spoke of the "foolishness" of preaching. Tertullian fiercely re-echoed the sentiment in his polemic against the philosophers of antiquity:—"Crucifixus est Dei filius; non pudet, quia pudendum est. Et mortuus est Dei filius; prorsus credibile est, quia ineptum est. Et sepultus resurrexit; certum est, quia impossibile est." But, as Christianity became firmly established, Christian writers[1] became more tolerant of speculation; and, instead of

[1] This turn of thought is not confined, however, to Christian thinkers; it appears also in the Arabian philosophy of the East. Al-Ghazzálí (Algazel) (1059–1111) in his *Taháfot al-Filásifa* ("The Collapse of the Philosophers") is the advocate of complete philosophical scepticism in the interests of orthodox Mohammedanism—an orthodoxy which passed, however, in his own case into a species of mysticism. He did his work of destruction so thoroughly that Arabian philosophy died out after his time in the land of its birth.

flaunting the irreconcileable opposition of reason and dogma, they laboured to reduce the doctrines of the church to a rational system. This was the long task essayed by Scholasticism; and, though the great Schoolmen of the 13th century refrained from attempting to rationalize such doctrines as the Trinity and the Incarnation, they were far from considering them as essentially opposed to reason. It was not till towards the close of the Middle Ages that a sense of conflict between reason and revelation became widely prevalent and took shape in the essentially sceptical theory of the twofold nature of truth. Philosophical truth, as deduced from the teaching of Aristotle, it was said, directly contradicts the teaching of the church, which determines truth in theology; but the contradiction leaves the authority of the latter unimpaired in its own sphere. It is difficult to believe that this doctrine was ever put forward sincerely; in the most of those who professed it, it was certainly no more than a veil by which they sought to cover their heterodoxy and evade its consequences. Rightly divining as much, the church condemned the doctrine as early as 1276. Nevertheless it was openly professed during the period of the break up of Scholastic Aristotelianism. Pomponatius, the Alexandrist of Padua (*ob.* 1525), was one of its best known advocates.

The typical and by far the greatest example of the Christian sceptic is Pascal (1623–1662). The form of the *Pensées* forbids the attempt to evolve from their detached utterances a completely coherent system. For, though he declares at times "Le pyrrhonisme est le vrai," "Se moquer de la philosophie c'est vraiment philosopher," or, again, "Humiliez-vous, raison impuissante, taisez-vous, nature imbécile," other passages might be quoted in which he assumes the validity of reason within its own sphere. But what he everywhere emphatically denies is the possibility of reaching by the unassisted reason a satisfactory theory of things. The contradictions which meet us everywhere are summed up and concentrated in the nature of man. Man is a hopeless enigma to himself, till he sees himself in the light of revelation as a fallen creature. The fall alone explains at once the nobleness and the meanness of humanity; Jesus Christ is the only solution in which the baffled reason can rest. These are the two points on which Pascal's thought turns. "There is nothing which is more shocking to our reason" than the doctrine of original sin; yet, in his own words, "le nœud de notre condition prend ses replis et ses tours dans cet abîme; de sorte que l'homme est plus inconcevable sans ce mystère que ce mystère n'est inconcevable à l'homme." Far, therefore, from being able to sit in judgment upon the mysteries of the faith, reason is unable to solve its own contradictions without aid from a higher source. In a somewhat similar fashion, in the present century, Lamennais (in the first stage of his speculations, represented by the *Essai sur l'Indifférence en Matière Religieuse*, 1817–21) endeavoured to destroy all rational certitude in order to establish the principle of authority; and the same profound distrust of the power of the natural reason to arrive at truth is exemplified (though the allegation has been denied by the author) in the writings of Cardinal Newman. In a different direction and on a larger scale, Hamilton's philosophy of the conditioned may be quoted as an example of the same religious scepticism. Arguing from certain antinomies, said to be inherent in reason as such, Hamilton sought to found theology (in great part at least) upon our nescience, and to substitute belief for knowledge. He also imitated Pascal at times in dilating upon the "impotence" and "imbecility" of our faculties; but, as with Pascal, this was rather in reference to their incapacity to evolve an "absolute" system than to their veracity in the ordinary details of experience. The theological application and development of Hamilton's arguments in Mansel's Bampton Lectures *On the Limits of Religious Thought* marked a still more determined attack, in the interests of theology, upon the competency of reason.

Passing from this particular vein of sceptical or semi sceptical thought, we find, as we should expect, that the downfall of Scholasticism, and the conflict of philosophical theories and religious confessions which ensued, gave a decided impetus to sceptical reflexion. One of the earliest instances of this spirit is afforded by the book of Agrippa of Nettesheim (1487–1535), *De Incertitudine et Vanitate Scientiarum*. Sceptical reflexion rather than systematic scepticism is what meets us in Michel de Montaigne (1533–1592), though the elaborate presentation of sceptical and relativistic arguments in his "Apologie de Raimond Sebond" (*Essais*, ii. 12), and the emblem he recommends —a balance with the legend, "Que scay-je?"—might allowably be adduced as evidence of a more thoroughgoing Pyrrhonism. In his "tesmoynages de nostre imbécillité," he follows in the main the lines of the ancients, and he sums up with a lucid statement of the two great arguments in which the sceptical thought of every age resumes itself—the impossibility of verifying our faculties, and the relativity of all impressions.[1] The argument from the mutability of opinions and customs was probably the one which appealed most strongly to himself. In the concluding lines of this essay, Montaigne seems to turn to "nostre foy chrestienne" as man's only succour from his native state of helplessness and uncertainty. But undoubtedly his own habitual frame of mind is better represented in his celebrated saying—"How soft and healthful a pillow are ignorance and incuriousness . . . . for a well-ordered head." More inclined than Montaigne to give a religious turn to his reflexions was his friend Pierre Charron (1541–1603), who in his book *De la Sagesse* systematized in somewhat Scholastic fashion the train of thought which we find in the *Essais*. François Sanchez (1562–1632), professor of medicine and philosophy in Toulouse, combated the Aristotelianism of the schools with much bitterness, and was the author of a book with the title *Quod nihil scitur*. Of more or less isolated thinkers, somewhat later in point of time, who wrote in the same sceptical spirit, may be mentioned the names of François de la Mothe le Vayer (1588–1672), whose *Cinq Dialogues* appeared after his death under the pseudonym of Orosius Tubero; Samuel Sorbière (1615–1670), who translated the *Hypotyposes Pyrrhoneæ* of Sextus Empiricus; Simon Foucher (1644–1696), canon of Dijon, who wrote a *History of the Academics*, and combated Descartes and Malebranche from a sceptical standpoint. The work of Hieronymus Hirnhaim of Prague (1637–1679), *De Typho Generis Humani sive Scientiarum Humanarum Inani ac Ventoso Tumore*, was written in the interests of revelation. This is still more the case with the bitter polemic of Daniel Huet (1630–1721), *Censura Philosophiæ Cartesianæ*, and his later work, *Traité Philosophique de la Faiblesse de l'Esprit Humain*. The scepticism of Joseph Glanvill (1636–1680), in his two works *The Vanity of Dogmatizing* (1661) and *Scepsis Scientifica* (1665), has more interest for Englishmen. Glanvill was not a sceptic at all points, seeing that he was full of enthusiasm for the advance of physical science and for the newly-founded Royal Society. But he attacked unsparingly the Aristotelianism of the schools, which was still dominant at Oxford. Against this, and also against the materialistic dogmatism of Hobbes, he invoked the weapons of scepticism; and he was led by his own arguments to query "whether there be any science in the sense of the dogmatists." He based this conclusion partly upon the ground that our knowledge of causes, being derived simply from "concomitancy," is far from being "infallibly conclusive." "The causality itself," he says, anticipating Hume, "is insensible"; accordingly, "the foundation of scientifical procedure is too weak for so magnificent a superstructure." More celebrated than any of the above was Pierre Bayle (1647–1706), whose scepticism lay more in his keen negative criticism of all systems and doctrines which came before him as literary historian than in any theoretic views of his own as to the possibility of knowledge. Bayle also paraded the opposition between reason and revelation; but the argument in his hands is a double-edged weapon, and when he extols the merits of submissive faith his sincerity is at least questionable.

Hume.

Hume, the most illustrious and indeed the typical sceptic of modern times, is treated at length in a separate article. Here, therefore, it is only necessary to point out shortly in what his scepticism consists. It is sometimes placed, as we have seen it is by Kant, in his distrust of our ability and right to pass beyond the empirical sphere. But the mere denial of the possibility of "divinity or school metaphysics," as we find it in the *Inquiry*, combined with an apparent confidence in "experimental reasoning concerning matter of fact and existence," does not constitute scepticism, but rather what would now be called agnosticism or positivism. It is essential to the sceptical position that reason be dethroned within experience as well as beyond it, and this is undoubtedly the result at which Hume arrives in his larger and more thoroughgoing work. More generally, therefore, his scepticism may be considered to lie in his relation to preceding philosophy. The *Treatise* is a *reductio ad absurdum* of the principles of Lockianism, inasmuch as these principles, when consistently applied, leave the structure of experience entirely "loosened" (to use Hume's own expression), or cemented together only by the irrational force of custom. Hume's scepticism thus really arises from his thoroughgoing empiricism. Starting with "particular perceptions" or isolated ideas let in by the senses, he never advances beyond these "distinct existences." Each of them exists on its own account; it is what it is, but it contains no reference to anything beyond itself. The very notion of objectivity and truth therefore disappears; the *Schein* or appearance of the moment is the only reality. Hume's analysis of the conceptions of a permanent world and a permanent self reduces us to the sensationalistic relativism of Protagoras. He expressly puts this forward in various passages as the conclusion to which reason conducts us. The fact that the conclusion is in "direct and total opposition" to the apparent testimony of the senses is a fresh justification of philosophical scepticism. For, indeed, scepticism with regard to the senses is considered in the *Inquiry* to be sufficiently justified by the fact that they lead us to suppose "an external universe which depends not on our perception," whereas "this universal and primary opinion of all men is soon destroyed by the slightest philosophy." Scepticism with regard to reason, on the other hand, depends on an insight into the irrational character of the relation which we chiefly employ, viz., that of cause and effect. It is not a real relation in objects but rather a mental habit of belief engendered by frequent repetition or custom. This point of view is applied in the *Treatise* universally. All real connexion or relation, therefore, and with it all possibility of an objective system, disappears; it is, in fact, excluded by Hume *ab initio*, for "the mind never perceives any real connexion among distinct existences." Belief, however, just because it rests, as has been said, on custom and the influence of the imagination,[1] survives such demonstrations. "Nature," as Hume delights to reiterate, "is always too strong for principle." "Nature, by an absolute and uncontrollable necessity, has determined us to judge as well as to breathe and feel." The true philosopher, therefore, is not the Pyrrhonist, trying to maintain an impossible equilibrium or suspense of judgment, but the Academic, yielding gracefully to the impressions or maxims which he finds, as matter of fact, to have most sway over himself. "I may—nay, I must—yield to the current of nature, in submitting to my senses and understanding; and in this blind submission I show most perfectly my sceptical principles," for, after all, "if we believe that fire warms or water refreshes, 'tis only because it costs us too much pains to think otherwise."[2]

The system of Kant, or rather that part of his system expounded in the *Critique of Pure Reason*, though expressly distinguished by its author from scepticism, has been included by many writers in their survey of sceptical theories. The difference between Kant, with his system of pure reason, and any of the thinkers we have passed in review is obvious; and his limitation of reason to the sphere of experience suggests in itself the title of agnostic or positivist rather than that of sceptic. Yet, if we go a little deeper, there is substantial justification for the view which treats agnosticism of the Kantian type as essentially sceptical in its foundations and in its results. For criticism not only limits our knowledge to a certain sphere, but denies that our knowledge within that sphere is real; we never know things as they actually are, but only as they appear to us. Our knowledge, in Kant's language, does not show us "the inward essence of the object in itself, but only the relation of the object to the subject." But this doctrine of relativity really involves a condemnation of our knowledge (and of all knowledge), because it fails to realize an impossible and self-contradictory ideal. The man who impeaches the knowing faculties because of the fact of relation which they involve is pursuing the phantom of an apprehension which, as Lotze expresses it, does not apprehend things, but is itself things; he is desiring not to know but to *be* the things themselves. If this dream or prejudice be exploded, then the scepticism originating in it—and a large proportion of recent sceptical thought does so originate—loses its *raison d'être*.[3] The prejudice, however, which meets us in Kant is, in a somewhat different form, the same prejudice which is found in the tropes of antiquity—what Lotze calls "the inadmissible relation of the world of ideas to a foreign world of objects."

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1 "Pour juger des apparences que nous recevons des subjects, il nous fauldra un instrument judicatoire; pour verifier cet instrument, il nous y fault de la demonstration; pour verifier la demonstration, un instrument; nous voylà au rouet. . . Finalement il n'y a aulcune constante existence, ny de nostre estre ny de celuy des objects; et nous, et nostre jugement, et toutes choses mortelles, vont coulant et roulant sans cesse; ainsin, il ne se peult establir rien de certain de l'un à l'aultre, et le jugeant et le jugé estants en continuelle mutation et bransle" (*Essais*, Garnier, i. 570).

1 "Belief is more properly an act of the sensitive than of the cogitative part of our nature."

2 Much the same conclusion is reached in what is perhaps the ablest English exposition of pure philosophic scepticism since Hume —Mr Arthur Balfour's *Defence of Philosophic Doubt* (1879). "The reader may wish to know," says Mr Balfour, "what constitute the 'claims on our belief' which I assert to be possessed alike by science and theology, and which I put forward as the sole practical foundation on which our convictions ultimately rest. . . . Whatever they may be, they are not rational grounds of conviction. . . It would be more proper to describe them as *a kind of inward inclination or impulse*" (pp. 316–7).

3 It may be as well to add that the sceptical side of Kantianism is mainly confined to the *Critique of Pure Reason*, but this side of Kantian thought has been most widely influential. The remarks made above would not apply to the coherent system of idealism which may be evolved from Kant's writings and which many would consider alone to deserve the name of Kantianism or Criticism

For, as he rightly points out, whether we suppose idealism or realism to be true, in neither case do the things themselves pass into our knowledge. No standpoint is possible from which we could compare the world of knowledge with such an independent world of things, in order to judge of the conformity of the one to the other. But the abstract doubt "whether after all things may not be quite other in themselves than that which by the laws of our thought they necessarily appear" is a scepticism which, though admittedly irrefutable, is as certainly groundless. No arguments can be brought against it, simply because no arguments can be brought to support it; the scepticism rests on nothing more than the empty possibility of doubting. This holds true, even if we admit the "independent" existence of such a world of things. But the independence of things may with much greater reason be regarded as itself a fiction or prejudice. The real "objective" to which our thoughts must show conformity is not a world of things in themselves, but the system of things as it exists for a perfect intelligence. Scepticism is deprived of its persistent argument if it is seen that, while our individual experiences are to be judged by their coherence with the context of experience in general, experience as a whole does not admit of being judged by reference to anything beyond itself.

To the attack upon the possibility of demonstration, inasmuch as every proof requires itself a fresh proof, it may quite fairly be retorted that the contradiction really lies in the demand for proof of the self-evident, on which all proof most ultimately depend. It is of course always possible that in any particular case we may be deceived; we may be assuming as self-evidently true what is in reality not so. But such incidental lapses are found to correct themselves by the consequences in which they involve us, and they have no power to shake our trust in the general validity of reason. It may, however, be granted that the possibility of lapse throws us open to the objections, ingenuous or disingenuous, of the sceptic; and we must remain exposed to them so long as we deal with our first principles as so many isolated axioms or intuitions. But the process of self-correction referred to points to another proof—the only ultimately satisfactory proof of which first principles admit. Their evidence lies in their mutual interdependence and in the coherence of the system which they jointly constitute.

Of a scepticism which professes to doubt the validity of every reasoning process and every operation of all our faculties it is, of course, as impossible as it would be absurd to offer any refutation. Here, as Butler incisively put it, "we can go no further. For it is ridiculous to attempt to prove the truth of those very perceptions whose truth we can no otherwise prove than by other perceptions of exactly the same kind with them, and which there is just the same ground to suspect, or to attempt to prove the truth of our faculties, which can no otherwise be proved than by the use of those very suspected faculties themselves." This absolute scepticism, indeed, can hardly be regarded as more than empty words; the position which they would indicate is not one which has ever existed. In any case, such scepticism is at all times sufficiently refuted by the imperishable and justifiable trust of reason in itself. The real function of scepticism in the history of philosophy is relative to the dogmatism which it criticizes. And, as a matter of fact, it has been seen that many so-called sceptics were rather critics of the effete systems which they found cumbering the ground than actual doubters of the possibility of knowledge in general. And even when a thinker puts forward his doubt as absolute it does not follow that his successors are bound to regard it in the same light. The progress of thought may show it to be, in truth, relative, as when the nerve of Hume's scepticism is shown to be his thoroughgoing empiricism, or when the scepticism of the *Critique of Pure Reason* is traced to the unwarrantable assumption of things-in-themselves. When the assumptions on which it rests are proved to be baseless, the particular scepticism is also overcome. In like manner, the apparent antinomies on which such a scepticism builds will be found to resolve themselves for a system based on a deeper insight into the nature of things. The serious thinker will always repeat the words of Kant that, in itself, scepticism is "not a permanent resting place for human reason." Its justification is relative and its function transitional.

Authorities.—Ancient scepticism is fully treated in the relative parts of Zeller's *Philosophie der Griechen*, with which may be compared Zimmermann's *Darstellung d. Pyrrhonischen Philosophie* (1841), and *Ueber Ursprung u. Bedeutung d. Pyrrh. Phil.* (1843); Wachsmuth, *De Timone Phliasio* (1859); Geffers, *De Arcesila* (1849); Norman MacColl, *Greek Sceptics from Pyrrho to Sextus* (1869); Haas, *De Philosophorum Scepticorum Successionibus* (1875). Among other works may be mentioned Stäudlin, *Geschichte und Geist d. Scepticismus, vorzüglich in Rücksicht auf Moral u. Religion* (1794); Tafel, *Geschichte d. Scepticismus* (1834); E. Saisset, *Le Scepticisme: Ænésidème, Pascal, Kant* (1875). (A. SE.)

SCEPTRE. Though the sceptre is now used principally as one of the insignia of royalty, the word originally had a more extended meaning. Among the early Greeks the σκῆπτρον was simply a long staff used by aged men (*Il.* xviii. 416; Herod., i. 196), and thus came to be used as a sign of authority by officials of many kinds—judges, military leaders, priests, heralds, and others. It is frequently represented on Greek painted vases as a long staff, tipped with metal in some ornamental fashion, and is borne by some of the gods. Among the Etruscans sceptres of great magnificence were used by the kings and also by the upper orders in the priesthood. Many representations occur on the walls of the painted tombs of Etruria. Some specimens which still exist are among the finest examples known of ancient jewellery. The British Museum, the Vatican, and the Louvre possess Etruscan gold sceptres of the most minute and elaborate workmanship. Some of these are hollow gold batons, about nine to twelve inches long and half an inch in diameter, completely covered with that very delicate ornament for which the Etruscan goldsmiths were so famed, produced by soldering thousands of microscopically minute globules of gold arranged in rich patterns on to the plain gold cylinder which forms the ground. One magnificent specimen in the gold-ornament room of the British Museum has its top formed like a flower, with outer petals of beaten gold and an inner core made by a large emerald; it is of the greatest beauty both in workmanship and design.

The sceptre of the Romans, like most of their insignia of rank, is said to have been derived from the Etruscans. An old and more Latinized form of the word is *scipio* (see Liv., v. 41). Under the republic an ivory sceptre (*sceptrum eburneum*) was one of the marks of consular rank. It was also used by victorious generals who received the title of *imperator*, and this use still survives in the modern marshal's baton. In Roman paintings the long staff-like sceptre is frequently represented in the hands of Jupiter and Juno, as chief of the gods.

Under the empire the *sceptrum Augusti* (Suet., *Galba*, i.) was specially used by the emperors. It was often of ivory, tipped with a gold eagle (Juv., *Sat.*, x. 43), and is frequently shown on medallions of the later empire, which have on the obverse a half-length figure of the emperor, holding in one hand the short eagle-tipped sceptre and in the other the orb surmounted by a small figure of Victory. The older staff-like form of sceptre still survived under

the name *hasta pura*; it is shown on the reverses of many Roman coins in the hand of deities and of the emperor or empress, though originally the *hasta pura* had a very different use, being simply a mark of distinction given by Roman generals to soldiers who had shown unusual bravery (Tac., *Ann.*, iii. 21). After the introduction of Christianity as the state religion, the imperial sceptre was frequently tipped with a cross instead of the eagle, though both were used. All through the Middle Ages both these forms survived, and sceptres of gold studded with jewels were used by most sovereigns of Europe. The gold sceptre of Charlemagne, a magnificent specimen of early jeweller's work, still exists among the regalia at Vienna. Some mediæval sceptres were of crystal or ivory mounted in gold. Several fine ancient examples existed among the regalia of England till after the death of Charles I., when the whole set were broken up and melted by order of the Parliament.

At the Restoration, four new sceptres were made for the coronation of Charles II. (see *Archæologia*, xxix. p. 262); and these still exist among the regalia in the Tower. They are—(1) the so-called St Edward's staff of gold, 4 feet 7 inches long, set with jewels, and surmounted with a cross and orb—a copy of the older one which contained in the orb a fragment of the true cross (this sceptre is borne in front of the sovereign during the processional part of the ceremony of coronation); (2) a gold sceptre tipped with a cross, which at the coronation is placed in the sovereign's right hand by the archbishop of Canterbury; (3) a similar sceptre tipped with a gold dove, which is placed in the sovereign's left hand;[1] (4) a small gold jewelled sceptre for the queen consort. Nos. (1) and (2) are both studded with diamonds. In addition to these four, there is a gold-mounted ivory sceptre, which was made for the queen of James II.; it is tipped with a gold dove and is studded with jewels. A sixth gold sceptre is that which was made for the queen at the coronation of William and Mary.

Among the Scottish regalia at Edinburgh a fine 15th-century gold sceptre still exists; and others of the same or earlier date are preserved among the royal insignia of several European countries.

SCHADOW, a distinguished name in the annals of German art.

I. Johann Gottfried Schadow (1764–1850), an eminent sculptor, was born in 1764 in Berlin, where his father was a poor tailor. His first teacher was an inferior sculptor, Tassaert, patronized by Frederick the Great; the master offered his daughter in marriage, but the pupil preferred to elope with a girl to Vienna, and the father-in-law not only condoned the offence but furnished money wherewith to visit Italy. The young man made the most of advantages which in those days fell to the lot of few: he gained in competition a prize for a group of Perseus and Andromeda; three years' study in Rome formed his style, and in 1788 he returned to Berlin to succeed his former master, Tassaert, as sculptor to the court and secretary to the Academy. Prussia in rising into a great kingdom had need for much sculpture, and Schadow brought timely talent and exceptional training. Over half a century, crowded with commissions, he persistently produced upwards of two hundred works, varied in style as in subjects. Among his ambitious efforts are Frederick the Great in Stettin, Blücher in Rostock, and Luther in Wittenberg. His portrait statues include Frederick the Great playing the flute, and the crown-princess Louise and her sister. His busts, which reach a total of more than one hundred, comprise seventeen colossal heads in the Walhalla, Ratisbon; from the life were modelled Goethe, Wieland, and Fichte. Of church monuments and memorial works thirty are enumerated; yet Schadow hardly ranks among Christian sculptors. He is claimed by classicists and idealists: the quadriga on the Brandenburger Thor and the allegorical frieze on the façade of the Royal Mint, both in Berlin, are judged among the happiest growths from the antique. Fauns, nymphs, cupids, and figures of fancy, scattered among plain portrait work, kept alive to an advanced age early associations formed in Italy. Schadow, as director of the Berlin Academy, gave proof of intellectual powers which made him a leader and secured many and devoted followers. Personal influence he extended and fortified by his books. He wrote on the proportions of the human figure, on national physiognomy, &c.; and many volumes by himself and others describe and illustrate his method and his work. He died, full of honours, at Berlin in 1850.

II. Rudolph Schadow (1786–1822), sculptor, son of the preceding, was born in Rome in 1786. His father, who returned to Berlin in 1788, was his first master. Rudolph in 1810 obtained the pension for Rome and received kindly help from Canova and Thorwaldsen. His talents were versatile: his first independent work was a figure of Paris, and it had for its companion a spinning girl. Following the example set by leading German artists then settled in Rome, he exchanged the Protestant for the Catholic faith, and gave pledge of his convictions by statues of John the Baptist and of the Virgin and Child In England he became known by bas-reliefs executed for the duke of Devonshire and for the marquis of Lansdowne. His last composition, commissioned by the king of Prussia, was a colossal group, Achilles with the Body of Penthesilea; the model, universally admired for its antique character and the largeness of its style, had not been carried out in marble when in 1822 the artist died in Rome.

III. Friedrich Wilhelm Schadow (1789–1862), painter, born in 1789 in Berlin, was the second son of Johann Gottfried Schadow the sculptor, from whom he received his earliest instruction. In 1806–7 he served as a soldier; in 1810 he went with his elder brother Rudolph to Rome. He became one of the leaders among the German pre-Raphaelite brethren who eschewed classicism and the Italian Renaissance and sought to rebuild Christian art on the principles and practice of early and purer times. Following the example of Overbeck and others, he joined the Catholic Church, and held that an artist must believe and live out the truths he essays to paint. The sequel showed that Schadow was qualified to shine less as a painter than as a teacher and director. The Prussian consul, General Bartholdi, befriended his young compatriots by giving them a commission to decorate with frescos a room 24 feet square in his house on the Pincian Hill. The artists engaged were Schadow, Cornelius, Overbeck, and Veit; the subject selected was the story of Joseph and his brethren, and two scenes, the Bloody Coat and Joseph in Prison, fell to the lot of Schadow. These well-studied and sound wall-paintings brought renown to the brethren, who were further fortified by the friendship of Niebuhr and Bunsen; the former writes—"They are all men of talent," and "Schadow is particularly refined and intellectual." Schadow was in 1819 appointed professor in the Berlin Academy, and his ability and thorough training gained devoted disciples. To this period belong pictures for churches. In 1826 the professor was made director of the Düsseldorf Academy, and so highly were his character and teachings esteemed that some of the best scholars accompanied their master. The

[1] Both these sceptres (or rather the older ones) were shown, one in each hand of the fine bronze effigy of Edward III. in Westminster Abbey, but as a rule royal effigies were represented with only one sceptre.

high and sacred art matured in Rome Schadow transplanted to Düsseldorf; he reorganized the Academy, which in a few years grew famous as a centre of Christian art to which pupils flocked from all sides. In 1837 the director selected, at request, those of his scholars best qualified to decorate the chapel of St Apollinaris on the Rhine with frescos, which when finished were accepted as the fullest and purest manifestation of the Düsseldorf school on its spiritual side. To 1842 belong the Wise and Foolish Virgins, in the Städel Institute, Frankfort; this large and important picture is carefully considered and wrought, but lacks power. Schadow's fame indeed rests less on his own creations than on the school he formed; he imparted to others nobility of conception, beauty of form, refinement and delicacy in expression and execution. Yet the master in Düsseldorf encountered opposition: a reaction set in against the spiritual and sacerdotal style he had established; a younger generation rose who stigmatized his system as narrow and bigoted; and in 1859 the party of naturalism and realism after a severe struggle drove the venerable director from his chair. Schadow died at Düsseldorf in 1862, and a monument in the platz which bears his name was raised at the jubilee held to commemorate his directorate. (J. B. A.)

SCHAFARIK (in Bohemian Šafařík), Paul Joseph (1795–1861), was by origin a Slovak, and was born in 1795 at Kobeljarova, a village of northern Hungary, where his father was a Protestant clergyman. It was not till his sixteenth year that any enthusiasm was aroused in him for the language and literature of his race. At this time an essay of Jungmann's fell into his hands, and at once gave a direction to his studies. His first production was a volume of poems in Bohemian entitled *The Muse of Tatra with a Slavonic Lyre*, published at Levocza in 1814. After this we find him collecting Slovak songs. In 1815 he began a course of study at the university of Jena, and while there translated into Czech the *Clouds* of Aristophanes and the *Maria Stuart* of Schiller. In 1817 he came to Prague and joined the literary circle of which Dobrovsky, Jungmann, and Hanka were members. In 1819 he was appointed headmaster of the high school at Neusatz (Novi Sad) in the south of Hungary; he remained occupied with the duties of this office till 1833. But besides his educational functions he busied himself with the study of Servian literature and antiquities, and acquired many rare books and manuscripts. In 1826 his *Geschichte der Slawischen Sprache und Literatur nach allen Mundarten* appeared at Pesth. This may truly be called an epoch-making book in the history of Slavonic studies. It was the first attempt to give anything like a systematic account of the Slavonic languages, the knowledge of which was at that time in such a rudimentary state that even Schafarik is not able to classify properly the Bulgarian language, but has grouped it with Servian. In 1833 appeared his *Serbische Lesekörner oder historisch-kritische Beleuchtung der Serbischen Mundart*, and in 1837 his great work *Slovanské Starožitnosti* ("Slavonic Antiquities"), by which he is at the present time best known. The "Antiquities" have been translated into Polish, Russian, and German, and we are promised an English version shortly from the pen of Mrs Alexander Kerr. This valuable work was enlarged and improved in the second edition, which appeared among the collected works of Schafarik, edited by Jireček after the author's death. In 1840 he published in conjunction with Palacký *Die ältesten Denkmäler der Böhmischen Sprache*, in which he defended the authenticity of those Bohemian documents which have been declared spurious by some scholars. In the year 1837 poverty compelled him to accept the uncongenial office of censor of Czech publications, which he abandoned in 1847 on becoming custodian of the Prague public library. In 1842 he published his valuable work *Slovanský Národopis*, which gives a complete account of Slavonic ethnology. In 1848 he was made professor of Slavonic philology in the university of Prague, but resigned it in the following year, probably from causes in some way connected with the political troubles of that period, of which Prague was one of the centres. He was then made keeper of the university library, in which office he continued till his death in 1861. He had long been in broken health,—his pains of body being augmented by brain disease, which had been brought on by his severe literary labours and also by family anxieties. His latter days were devoted to philology, one of the chief subjects treated of by him being the antiquity of the Glagolitic alphabet, about which he held very different opinions at various periods of his life. He was also for some time conductor of the "Journal" of the Bohemian Museum, and edited the first volume of the *Vybor*, or selections from old Czech writers, which appeared under the auspices of the literary society in 1845. To this he prefixed a grammar of the Old Bohemian language. His correspondence with Pogodin has been published by Prof. Nil Popoff of Moscow among the letters of that eminent scholar.

Schafarik was a man of the purely literary type,—an indefatigable worker, an enthusiast, and a sincere patriot. The study of Slavonic philology and ethnology has advanced since his time; but the greater part of his work is permanent and monumental. Besides his collected writings (*Sebrané Spisy*), which were reprinted at Prague after his death during the years 1862–1865, a posthumous work by him also made its appearance, edited by J. Jirecek, *Geschichte der Südslawischen Literatur*.

SCHAFFHAUSEN, in area (111·7 square miles) and actual population (38,348) the 19th and in relative density of population the 7th of the cantons of Switzerland, forms the most northern angle of the Swiss territory, and lies on the right or German side of the Rhine, which separates it from the cantons of Thurgau and Zurich. It is divided into three distinct portions by spurs of the grand-duchy of Baden, which also possesses the small enclave of Büsingen on the Rhine. Geologically it belongs for the most part to the Swabian Jura, and directly or indirectly it all drains to the Rhine, which forms its famous falls in the neighbourhood of the chief town (see Rhine, vol. xx. p. 519). In the broad straths of the Klettgau vine-growing and agriculture go hand in hand (the wines of Hallau being in high repute); the more elevated districts of Randen and Reyat (highest point 3040 feet above the sea) raise the grain-production of the canton above the home demand, and also provide large quantities of potatoes, hemp, and fruit. Under a careful regime the forests are recovering from a state of comparative exhaustion. The Schaffhausen cattle are partly Swabian and partly Swiss; Klettgau has a special breed of pigs of its own. Manufacturing industries have their best development at Schaffhausen-Neuhausen. The population, which increased from 35,300 in 1850 to 38,348 in 1880, is almost exclusively of German speech (230 individuals only using other languages). Protestants are to Roman Catholics as 8 to 1 (33,897 and 4154); the latter are attached to the bishopric of Basel. Schaffhausen has been a member of the Swiss confederation since 1501. By the new constitution of 1876 it became remarkably democratic. The great council consists of representatives of the people elected for four years at the rate of one for every five hundred inhabitants. On the petition of any thousand of the electors, a measure may be introduced to the chamber or submitted to the direct vote of the citizens. The five members of the administration are also popularly elected. Education is well endowed, primary education being compulsory. A reformatory for destitute children is maintained at Friedeck, near Buch.

SCHAFFHAUSEN, the capital of the above canton, is situated on the bank of the Rhine, 30½ miles by rail west of Constance and 60 east of Basel, and communicates by a bridge with the village of Feuerthalen (1000 inhabitants) in Zurich. It is a city of contrasts—mediæval architecture of the true Swabian type and modern manufactures mingling curiously together. The cathedral, formerly the church of the abbey of All Saints (Allerheiligen), is a massive basilica founded in 1104 and completed in 1453; its great bell (1486) bears the inscription *Vivos voco, mortuos plango, fulgura frango*, which suggested Schiller's "Song of the Bell" and the opening of Longfellow's *Golden Legend*. On the Rebhügel above the town rises the castle of Munoth (1564–1590) with bomb-proof casemates, and a tower whose top is reached by a spiral ascent up which one can ride or drive. In Herrenacker Platz stands the Imthurneum, a building erected (1864) and presented to the town by a Swiss citizen, resident in London, for the "promotion of æsthetic and scientific culture"; it contains a theatre, concert-rooms, &c. The public library (28,000 volumes) possesses the printed and MS. collections of Johann von Müller, who was born at Schaffhausen in 1752, and his monument adorns the promenade of the Vesenstaub. In the museum is preserved the famous Keszlerloch "find." Among the industrial establishments of the city and vicinity are ironworks, waggon and carriage factories, woollen and cotton factories, breweries, distilleries, and champagne factories. The population of the commune was 10,303 in 1870 and 11,795 in 1880.

Schaffhausen (Latinized as *Scafusia* or Græcized into *Probatopolis*) first appears in the 9th century, and had already attained the rank of an imperial city in 1264.

SCHALCKEN, Godfried (1643–1706), genre and portrait painter, was born at Dort in 1643, and studied under Van Hoogstraten, and afterwards under Gerhard Douw, whose works his earlier genre-pictures very closely resemble. He visited England and painted several portraits, of which the half-length of William III., now in the Museum, Amsterdam, is a good example. In this work he shows an effect of candle-light, which he also introduced—frequently with fine effect—in many of his subject-pictures. These may be studied in the collections at Buckingham Palace, the Louvre, Vienna, and Dresden. He executed several Scriptural subjects—such as that of the Wise and Foolish Virgins, at Munich—of very indifferent merit. He died at The Hague in 1706.

SCHAMYL (*i.e.*, Samuel), prophet and hero of the Caucasian mountaineers, was born in 1797. See Caucasus, vol. v. p. 258. After his defeat and capture he passed ten years in Russia, where he was well treated. In 1870 he went on pilgrimage to Mecca, and died at Medina in March of the following year.

SCHANDAU, a small town of Saxony, is situated on the right bank of the Elbe, at the mouth of the little valley of the Kirnitzsch; 21 miles to the south-east of Dresden, and 4 miles from the Bohemian frontier. Its position in the heart of the romantic "Saxon Switzerland" gives it an importance to which on other grounds it is not entitled, and thousands of tourists make it their headquarters in summer. The stationary population in 1880 was 3301.

SCHARNHORST, Gerhard Johann David von (1756–1813), Prussian general, celebrated as the author of the so-called "Krümpersystem," or short service system (see vol. ii. p. 594), by which the Prussian nation was prepared for the war of liberation, was a Hanoverian by birth, and served in the Hanoverian army from 1778 to 1801, when he passed into Prussian service, and soon became the leader in the reconstruction of its forces. In the war with France in 1813 he accompanied Blücher as chief of the general staff, but received a severe wound in the first battle (Grossgörschen), which soon after was followed by his death. The first part of an extensive and important biography of Scharnhorst by Lehmann has recently appeared (Leipsic, 1886).

SCHÄSSBURG (Hung. *Segesvár*), chief town of the Transylvanian county of Nagy-Küküllö, Hungary, stands on the river Nagy-Küküllö, 24 miles east-south-east of Maros-Vásárhely, in 46° 10′ N. lat., 24° 47′ E. long. It consists of two parts,—the one which formerly served as a fortress on the top of a hill, and the other in the valley below,—the two being connected by a covered passage. Schässburg is the seat of various public offices and of a district court of justice; its other institutions include a Franciscan convent, a Protestant upper gymnasium, a teachers' institute and seminary, two savings banks, a free library, hospital, barracks, &c. As a station on the eastern system of the Hungarian State Railways, Schässburg has a good woollen and linen trade, as well as exports of wine and fruit. Among its principal buildings an old Gothic church and the lofty town-hall are specially worthy of mention. The population in 1884 amounted to 8810, the majority being Germans (Saxons), and the remainder Roumanians and Hungarians.

Schässburg was founded by Saxon colonists at the end of the 12th century; its Latin name was *Castrum Sex*. The most important event in its history was the battle on the 31st July 1849, in which the Hungarian army under Bem was defeated by the overwhelming numbers of the Russian General Lüders. The great national poet, Petöfi, was last seen, and is generally believed to have met his end in this engagement.

SCHAUMBURG-LIPPE. See Lippe.

SCHEELE, Karl Wilhelm (1742–1786), an eminent chemist, was born at Stralsund, the capital of Pomerania, which then belonged to Sweden, on the 19th December 1742. His father was a merchant, and Karl Wilhelm was the seventh of a family of eleven. In due time the boy was sent to school, but he did not care for the languages, and as he showed a strong taste for pharmacy he was apprenticed at the age of fourteen to an apothecary in Gothenburg, called Bauch, with whom he stayed for eight years. He was thoughtful and silent, and very punctual and precise in discharge of his duties. His spare time and great part of his nights were devoted to the experimental examination of the different bodies which he dealt with, and the careful study of the standard works on chemistry. By these means he acquired a large store of knowledge and great practical skill and manipulative dexterity. In 1765 he removed to Malmö, and resided for five years with Kalström, an apothecary, whence he removed to Stockholm, to Scharenberg, also an apothecary. While here he wrote out an account of his experiments with cream of tartar, from which he had isolated tartaric acid, and sent it to Bergman, the leading chemist in Sweden. Bergman somehow neglected it, and this caused for a time a reluctance on Scheele's part to become acquainted with that savant, but the paper, through the instrumentality of Retzius, was ultimately communicated to the Academy of Sciences at Stockholm. In 1771 Scheele finished an elaborate inquiry into the composition of the beautiful mineral fluor-spar, and showed that it consisted of lime and a peculiar acid which he called fluor acid. He misunderstood, however, the true character of the decomposition he had effected, and gave an erroneous explanation of it. His experiments had been conducted in glass vessels, and he was not aware that what he actually got was the fluo-silicic acid. This mistake was subsequently pointed out and corrected by some other chemists. He left Stockholm in 1773 and took up his residence at Upsala. Here he made the acquaintance of Gahn, assessor of mines at Fahlun, through whose mediation he was at length introduced to