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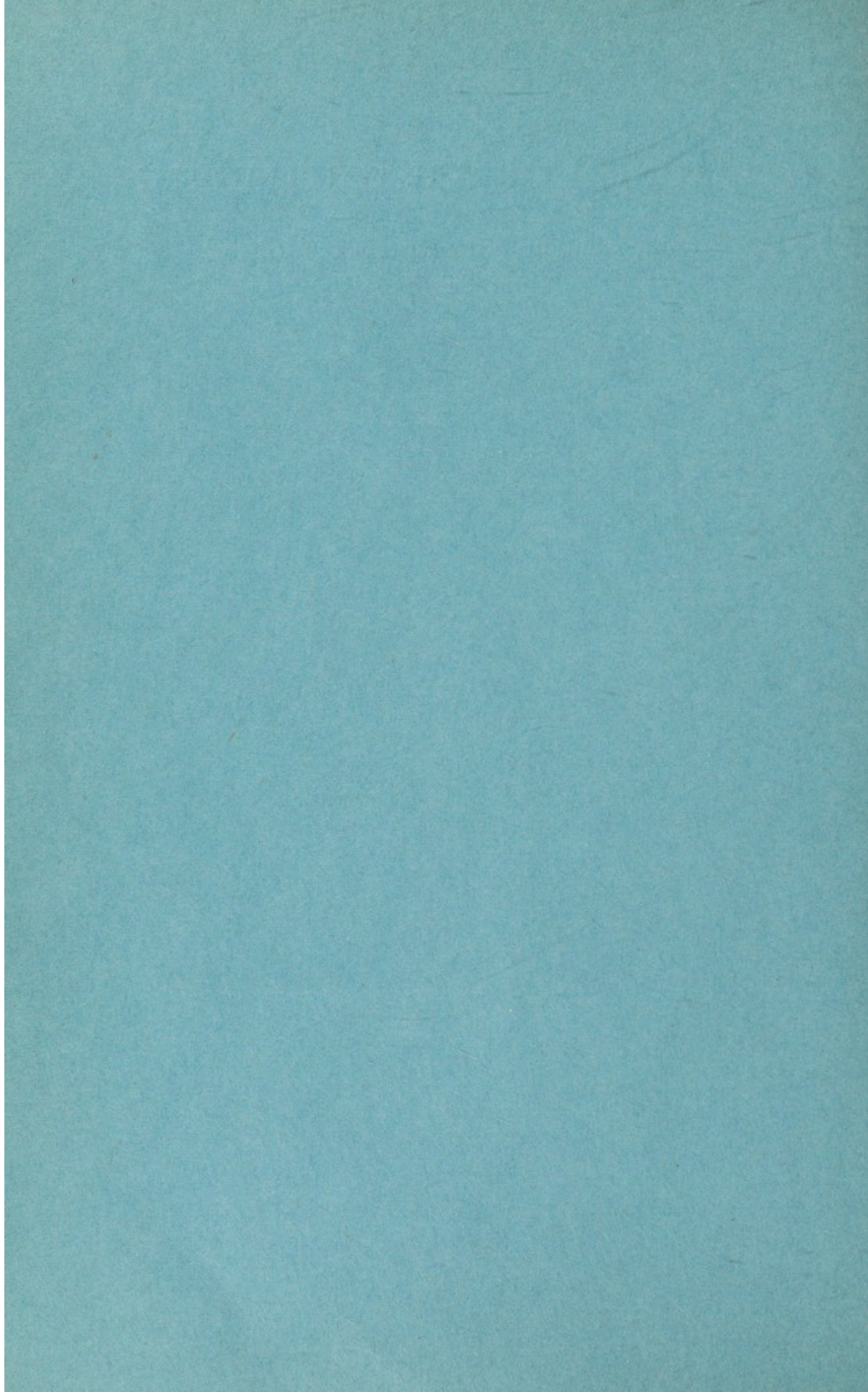
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PLATONISM OR ARISTOTELIANISM?

A Contribution to the History of Medicine
and Science

BY
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PLATONISM OR ARISTOTELIANISM?

A CONTRIBUTION TO THE HISTORY OF MEDICINE AND SCIENCE

LUDWIG EDELSTEIN

It is not astonishing, regardless of the reasons given in detail, to meet with the contention that the physician *qua* physician can under no circumstances be a Platonist, or that if he is a Platonist and not an Aristotelian, he certainly is not a good doctor.¹ The claim that Platonism is destructive of a scientific attitude, whereas Aristotelianism is productive of it, is, nowadays, a familiar one in regard to all branches of learning. To be sure, the opposite stand is also taken; elaborate appreciations of Platonism and its positive influence on the development of science are given; yet Platonism is on the defensive. Generally speaking, it seems well justified to state: "Though there are honorable exceptions, it is currently taught that Platonism is the antithesis of the scientific spirit and that Plato is a reactionary in relation to the evolutionary and mechanistic philosophies of the pre-Socratics, and a dreamer, spinning the world out of his inner consciousness, as contrasted with the fact-loving Aristotle."²

¹ Cf. H. Silvette, *Medicine in Utopia*, *Bulletin of the History of Medicine*, 7, 1939, pp. 1013-18. Cf. however G. Kasten Tallmadge, *Misconception of a Utopia*, *ibid.*, 8, 1940, pp. 666-678.

² P. Shorey, *Platonism and the History of Science*, *Proceedings of the American Philosophical Society*, 66, 1927, p. 161. Nobody interested in the question at stake

In science and its history, then, just as in philosophy and in political theory, Aristotelianism is likely to be represented, and to be believed in, as *the* truth. The Aristotelians are winning the day, and since "every man is born an Aristotelian or a Platonist," as Coleridge holds,³ one is inclined to conclude that nature has somehow decided the issue. Yet there is still a slight chance left for stemming this predominant trend of thought. The Aristotelians as Aristotelians and scientists are wont to cherish facts. A restatement of facts, showing that Platonism is not, and has never been, the antithesis of science, may therefore help in bringing about a change of heart in the Aristotelians. Even Coleridge, though he was "sure that no born Platonist can ever change into an Aristotelian," went only as far as not to "think it possible that anyone born an Aristotelian can become a Platonist." But what may become possible or impossible one cannot foretell, potentiality being, so to say, a function of actuality. No doubt, the facts to be recounted have been pointed out before, and many times too. Yet truth and knowledge, no matter how firmly established, are bound to perish, says Aristotle; but, so he adds, they can be recovered again and again. It is therefore with some hope at least that I dare take up the subject once more.

Plato and physic are incompatible; Plato has a lowly opinion of physicians—the one assumption is apparently based on the belief, not proved but rather presupposed, that Plato lives in a "twilight of abstractions" and is motivated by a real "hatred of a fact"; the other is elaborated on with various reasons.⁴ Only the first contention, however, is, I think, important; the second, even if correct, would be quite irrelevant. Nevertheless, in order to dispose of the argument and its possible consequence, I must state that in my opinion Plato never disparages the merit of physicians and that

can afford to disregard this paper of Shorey's who, being a philologist and historian, expressly writes for scientists and carefully considers the scientific problems of today.

³ S. T. Coleridge, *The Table Talk and Omniana*, July 2, 1830.

⁴ Silvette, *loc. cit.*, pp. 1014 ff.; the whole argumentation as given in this paragraph refers to statements of Silvette, who, in his general thesis, shares the point of view held by N. Douglas, *Old Calabria*, ch. 38, *The Sage of Croton*.

therefore it is not necessary to "discount" his remarks as those of a man who does not understand anything of medicine. I have no defense to offer for the metaphysician Plato who "in the nine grades of human existence into which Platonic souls pass" places the physician in the fourth. I leave it to the political theorist Plato that in his state he wishes to have physicians who not only have suffered from diseases but are not quite healthy, because he thinks that they would make better doctors. Again, it is the responsibility of the political theorist Plato that he rejects the modern type of medical care as initiated by Herodicus and declares himself in favor of the older Asclepiadean medicine as he sees it. Whatever the merit of his decision that only those should be cured who afterwards can still do useful work, such an attitude does not imply any hostility toward medicine as such, or any depreciation of the physician's value. Moreover, many other passages in the Platonic dialogues testify to Plato's high esteem for medicine and for the medical men (cf. especially *Charmides* 156 b ff.; *Laws* 720 a ff.). Last but not least, Plato admires Hippocrates and the Hippocratic method which, as the correct procedure, he pretends to follow in his own inquiries (*Phaedrus* 270 b ff.). This fact alone should make it impossible, I think, to speak of any contempt for doctors on Plato's part, and it should suffice to show that even a man of good health until a ripe old age can sometimes think of medicine as very necessary and useful or, in other terms, that Plato is not—"Mr. Day."⁵

But, as I said before, all these considerations are of minor importance. The real issue is not Plato's personal like or dislike of physicians; it is the question of whether there is in fact a specific incompatibility of Platonic philosophy and medicine on the one hand, and a specific affinity of Aristotelian philosophy and medical thinking on the other.⁶ That such a thesis should be proposed without any reservation is very strange indeed. The Galenic system, for more than a millennium and a half the dominating medical system, which to be sure served its purpose quite well, is based on the integration of Platonic philosophy into natural science; Galenic medicine is Platonic,

⁵ Silvette, *loc. cit.*, p. 1018: "Indeed, while rereading my medical notes on the *Republic* I was reminded of Mr. Clarence Day's father."

⁶ Silvette, *loc. cit.*, p. 1014.

at least in the eyes of Galen.⁷ To Galen it is Plato, not Aristotle, who agrees with Hippocrates in the correct understanding of the bodily and psychic powers, in the correct explanation of diseases; it is Plato, not Aristotle, who shares with Hippocrates the right concepts of dynamism and of teleology. Galen, then, is a Platonist; yet he was certainly not blinded to the importance of facts. On the contrary, he prided himself upon his observations and he took even Plato and Hippocrates to task whenever they seemed not to stand the criticism of facts. Thus, for Galen and his followers, Platonic philosophy was the foundation of scientific medicine. It is true, on the other hand, that the revival of Aristotelianism in the late Middle Ages did by no means enhance a "scientific attitude," if by that concept emphasis on factual knowledge is indicated. Aristotelianism, at that time at least, brought about scholasticism and the reign of extreme dialectics, in medicine no less than in the other branches of learning. From a historical point of view, therefore, the unqualified antithesis of Platonic thinking and medicine is certainly incorrect; they are not necessarily contradictory.

But at this point an objection may be raised: even if all that I have said is true of ancient and medieval medicine, modern medicine, being a part of modern science, must be anti-Platonic since modern science itself cannot be reconciled with Platonism. Such an objection is to be taken very seriously and indicates at the same time how the question really stands. If Platonism and modern science are incompatible, then, and only then, are Platonism and modern medical science also far apart. It is therefore necessary to turn to the discussion of the problem whether Platonism and modern science are antithetic. Two statements of Plato's have proved to be the main "stumbling blocks" for the interpreter, and the correct evaluation of their bearing on the relation of Platonic philosophy to science is still much discussed: the one is Plato's insistence that reality cannot be comprehended by scientific laws, the other is his rejection of observation as a means of attaining adequate knowledge.

As regards Plato's concept that the explanation of the world of phenomena can be given only with the probability inherent in a likely

⁷ This attitude of Galen's is most clearly demonstrated in his *De placitis Hippocratis and Platonis*.

story and incomparable to the certainty of logical or mathematical knowledge (*Timaeus* 29 b ff.), there is no reasonable doubt about the difference of such a belief from the attitude of the modern scientist. It may be true that Plato writes his "prose-poem" of the world-creation taking into account the scientific ideas of his time, and that in his speculations he anticipates some of the most modern scientific ideas of today⁸—the main point remains, I think, that he tells a poetical story where one expects him to give a scientific account, and that scientific explanations for the problems in question seem impossible to him. It is of no use to gloss over these difficulties. Nor have I any desire to deny that Plato, as regards facts, is most critical of their value and of that of observation. His words (*Republic* 529 a ff.)⁹ seem to me an unequivocal rejection of observation as a basis of attaining astronomical knowledge in particular, and as one must conclude, of knowledge in general. Even apart from what Plato says here, it is certain that he is not interested in facts. It will not do, I think, to point to the richness of facts to be found in his dialogues,¹⁰ though this would be enough to discard the alleged Platonic "hatred of a fact." Yet whatever the number of observations in Plato's writings, however favorably they may compare with those of Aristotle, the use which Plato makes of them is not that of scientific exploitation. Plato's attitude toward the world of phenomena is rightly characterized by Kant's statement: "The light dove, cleaving the air in her free flight, and feeling its resistance, might imagine that its flight would be still easier in empty space. It

⁸ Cf. Shorey, *loc. cit.*, p. 163 ff., who overemphasizes this point and hardly does justice to the fundamental difference of methods. The same is true of A. E. Taylor, *Plato, The Man and his Work*, 1936, pp. 440 ff.; 456, note 1.

⁹ Cf. Plato, *The Republic*, with an English translation by P. Shorey, The Loeb Classical Library, II, 1935, pp. 179 ff., where the modern discussion of the scientific import of the passage is most conveniently summarized in the annotations. Shorey, *Proceedings*, *loc. cit.*, pp. 171 ff., seems somehow to differ in his evaluation of Plato's words. Is it not sufficient to say that Plato "is in some sort predicting the mathematical astronomy of today. That is of course not the whole of our modern astronomy. But it exists and is a fulfilment of Plato's prophecy" (*loc. cit.*, p. 172). Such a statement, even if true, does not do away with the Platonic rejection of facts. I do not believe either that only "a hasty modern reader" can mistake Plato's words for a repudiation of facts and observation as basis of understanding (*ibid.* and p. 173).

¹⁰ Contrary to Shorey, *loc. cit.*, p. 163 and p. 166.

was thus that Plato left the world of the senses, as setting too narrow limits to the understanding, and ventured out beyond it on the wings of the ideas, in the empty space of the pure understanding."¹¹ Plato knows the world of facts, to be sure, but he leaves it behind, he even transgresses it in his thought, delving into the beyond. If this is the Platonic ethos, it is certainly not that of the modern scientist.

But there is another aspect of Platonic thinking in which Plato and the modern investigator do agree: it is Plato's recommendation of arithmetic and measurement by which alone reliable knowledge is guaranteed, his insistence on mathematical methods. He says: "If arithmetic and the sciences of measurement and weighing were taken away from all arts, what was left of any of them would be, so to speak, pretty worthless . . . All that would be left for us would be to conjecture and to drill the perceptions by practice and experience, with the additional use of the powers of guessing, which are commonly called arts and acquire their efficacy by practice and toil" (*Philebus* 55 e).¹² In other words: the mathematician Plato is "up-to-date." No doubt these and similar utterances, at least in their intention, "differ little from Lord Kelvin's statements that he understood a thing only when he could construct a working model of it, and that if you can measure a thing and express it by number, you have some knowledge of it, otherwise not; from Kant's declaration that the only part of any theory of nature that is scientific in the strict sense of the word is the quantity of mathematics which it contains; from Clerk Maxwell's statement that progress is symbolized in the clock, the balance and the foot-rule."¹³ However, since the belief in the predominant value of mathematical understanding is also Platonic, it follows that the current rejection of Platonism as anti-scientific is based on an incorrect oversimplification of Platonic thinking. In reality, Platonic philosophy and modern scientific thought are not diametrically opposed but rather overlap in part.

¹¹ I. Kant, *Critique of Pure Reason*, Introduction, III (translated by N. K. Smith, 1929, p. 47). In his analysis of the Platonic method G. H. Lewes (*Aristotle, a Chapter from the History of Science*, 1864, p. 107) refers to this Kantian passage. Lewes' book is strangely neglected in the modern discussion.

¹² Plato, *Philebus*, with an English translation by H. N. Fowler, The Loeb Classical Library, 1925, p. 359; cf. also *Republic* 602 d, and for the historical importance of these statements for the development of modern science below, p. 764.

¹³ Shorey, *loc. cit.*, p. 177.

To be sure, Platonism is not exhaustively defined by the characterizations given so far. There is Platonic love, the eternal subject of certain Platonists, or of the Neo-Platonists of the Renaissance, which has inspired philosophers and poets alike; there is mysticism which claims to be Platonic, even superstition to which the same name is given.¹⁴ But as far as science and its history are concerned, these wrong or right conceptions of Platonism have never been important. It is not Plato's personal relation to scientists, or the supposedly scientific character of late Platonic philosophy, I think, which is responsible for the productive influence of Platonism on science. Plato, though much interested even in specific scientific problems, remains all his life a dialectic philosopher.¹⁵ It is rather the scientists themselves who have been appreciative of the scientific trends in Platonic philosophy and have apprehended as "Platonism" that part of Platonic thinking which is a stimulus to the study of nature and to mathematical inquiry. In antiquity the *Timaeus* becomes the foundation, not of mythology, but of natural philosophy, as this term is understood at that time. Music and mathematics are essentially Platonic; in astronomy, too, many doctrines of Plato, and some of the most important ones at that, are retained. The prominent rôle played by Platonism in the natural studies of the Middle Ages has become increasingly more evident.¹⁶ In that period it is the

¹⁴ This side of Platonism has been well characterized by Shorey (*loc. cit.*, p. 161): "The association of Platonism with superstition is an historical fact and perhaps a natural tendency . . . The later Neo-Platonists practised levitation . . . The witty Lucian . . . represents a Platonic philosopher as swallowing all the ghost-stories which the Epicurean rejects. No wonder, says Lucian smartly; a man whose eyes are sharp enough to discern the Platonic ideas can of course see spooks. The indictment, then, is partly true of historical Platonism. But it does not fairly fit Plato." In his book (*Platonism Ancient and Modern*, Sather Classical Lectures, 14, 1938) Shorey rather neglects the scientific influence of Platonism, dealing almost exclusively with the literary influence; this is especially true of the chapter on the Renaissance (pp. 118 ff.).

¹⁵ In this respect the stand taken by E. Howald (*Die platonische Akademie und die moderne Universitas Litterarum*, 1921) seems to me the right one. Cf. also, E. Frank, *American Journal of Philology*, 61, 1940, p. 171, concerning the essentially unchanged character of Platonic philosophy in its late form.

¹⁶ And this is the case although the history of medieval science has not yet been studied carefully enough to warrant a substantiated judgment in all details. Cf. Ch. H. Haskins, *Studies in the History of Mediaeval Science*, 1927, p. 88; and above all Cl. Bæumker, *Der Platonismus im Mittelalter* (1916; reprinted and

natural scientists who feel attracted by Platonic ideas; it is above all the Platonists who try to understand nature, who study mathematics. Finally, that modern science has been developed in close connection, not with rediscovered Platonic books, but with rediscovered Platonic concepts, is a fact almost too well known to be mentioned.¹⁷ Galileo quotes Plato as the authority for the value of mathematics, Kepler defends his new theory with a reference to Plato. Modern mathematical science, then in spite of its non-Platonic concept of natural laws, in spite of its non-Platonic insistence on the verifying experiment, is also in agreement with fundamental Platonic ideas. As long as modern scientific thinking remains dependent on the work done by men like Galileo and Kepler, it can never be un-Platonic. Platonism anti-scientific? Neither the Platonic dialogues nor the history of science bears out such a verdict.

The one term in the common antithesis of Plato and Aristotle being subject to material changes, should the other have to be modified also? Aristotle, the protagonist of the cause of the moderns—is such a contention convincing? To discard for the moment Aristotle's indifference toward mathematics and his very Platonic concept of natural laws as comprising either the necessary or the usual though not the accidental,¹⁸ even the "fact-loving" Aristotle is hardly to the modern heart's desire. The old Aristotle, the master of biology and natural science, still says: "Of things constituted by nature some are ungenerated, imperishable, and eternal, while others are subject to generation and decay. The former are excellent beyond compare and divine, but less accessible to knowledge. The evidence that might throw light on them, and on the problems which we long to solve respecting them, is furnished but scantily by sensation; whereas respecting perishable plants and animals we have abundant

amplified in Cl. Bäumker, *Studien und Charakteristiken zur Geschichte der Philosophie*, Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters, 25, 1928, Heft 1-2, especially pp. 153 ff.) who summarizes the work which has been done so far, but unfortunately is scattered over innumerable special investigations.

¹⁷ The references are too many to be enumerated here. Short survey, E. Cassirer, *Die Antike und die Entdeckung der exakten Wissenschaft*, *Die Antike*, 8, 1933, pp. 276 ff.; more detailed the same, *Individuum und Kosmos in der Philosophie der Renaissance*, *Studien der Bibliothek Warburg*, 10, 1927; cf. also Shorey, *loc. cit.*, p. 180.

¹⁸ Th. Case, *Brit. Encyclop.*, 11 ed., s. v. Aristotle, p. 517 b.

information, living as we do in their midst, and ample data may be collected concerning all their various kinds, if only we are willing to take sufficient pains. Both departments, however, have their special charm. The scanty conceptions to which we can attain of celestial things give us, from their excellence, more pleasure than all our knowledge of the world in which we live; just as a half glimpse of persons that we love is more delightful than a leisurely view of other things, whatever their number and dimensions. On the other hand, in certitude and in completeness our knowledge of terrestrial things has the advantage. Moreover, their greater nearness and affinity to us balances somewhat the loftier interest of the heavenly things that are the objects of the higher philosophy."¹⁹ There are, then, according to Aristotle, two different realms of "facts," and though the study of every one of them is interesting and praiseworthy, the value of such studies is incomparable. Such a belief, however, is certainly not similar to that of the disinterested researcher for whom facts are valuable for fact's sake without any discrimination; it is not like the modern resignation to the world of phenomena beyond which there exists no other, at least none the existence of which can be proved scientifically. Moreover, Aristotle does not "catalogue" the facts which he collects;²⁰ the description of facts in his intention is only a preparatory undertaking, either "natural history, preparatory to natural philosophy, as in the *History of Animals* preparatory to the *De Partibus Animalium*, or what we call civil history, preparatory to political philosophy, as in the 158 Constitutions more or less preparatory to the *Politics*."²¹ And the content of natural philosophy or political philosophy? It is the investigation of causes in which the formal cause proves to be the essential one as compared with the material conditions. In fact form, although it is recognized *a posteriori*, exists prior to matter; truly scientific research proceeds in syllogisms, in deductions, from the determining principles to the

¹⁹ *De Partibus Animalium*, I, 5, 644b 22 ff. (The works of Aristotle translated into English [W. Ogle], V, 1912, Oxford.)

²⁰ Contrary to Shorey, *loc. cit.*, p. 163, who besides reduces the difference of interest in facts as shown by Aristotle and Plato to the difference between the mathematician and the biologist "who naturally collects more little facts"; but cf. above p. 761.

²¹ Case, *loc. cit.*, p. 521b.

individual data. In short, although Aristotle does not venture out beyond this world on the wings of the ideas, he is not the captive of sense perception and observation either. He is the "philosopher of facts" ²² who in an imposing edifice subsumes the data under general principles which are based on the evidence of speculative reasoning. In spite of all his emphasis on facts which seems modern, he is not a modern scientific observer of phenomena.

That factual investigation is not the essential part of Aristotelian philosophy is brought out most clearly by the relation of Aristotelianism to the development of science. In antiquity those men who dedicated themselves to a direct and unbiased study of the phenomena, the scientists of the second and third generation after Aristotle are not Aristotelians. The Alexandrian schools, although originally connected with the Peripatos, sever the "link between science and philosophy," that is between science and Aristotelian philosophy. This statement is true of all sciences, last but not least of biology and medicine.²³ Even the appellation *ὁ φυσικός*, which was given the second successor in the Lyceum, was intended to emphasize the departure of the "naturalist" Strato from the principles of the founder Aristotle. Why so, if Aristotelianism itself is conducive to the observation of phenomena, to a scientific attitude? Or again, when Aristotelianism in its pure form had been restored during the twelfth century, logic and speculative thought became supreme. The "twilight world of abstractions," the "hatred of a fact," if one wants to indulge at all in such hyperbolic expressions, can be predicated of these most Aristotelian centuries of the Middle Ages with

²² Case, *loc. cit.*, 517b; for the scientific method in general: Th. Case, *Scientific Method as a Mental Operation* (Lectures on the Method of Science, ed. by T. B. Strong, Oxford, 1906, pp. 1 ff.); W. D. Ross, *Aristotle*, 1924, pp. 41 ff.

²³ W. Jaeger, *Aristotle*, translated by R. Robinson, 1934, pp. 404-05: "Alexandrian science is the spiritual continuation of Aristotle's last period. There the link between science and philosophy was definitely broken; the infinitely refined technique of Ptolemaic research dispensed with the stable intellectual centre that Aristotle's detailed work had possessed in his great spiritualist view of the universe. On the other hand, the most important discoveries of ancient science are due to this separation, which was a necessary liberation of research. It was now that medicine and natural science, together with exact philology, attained their greatest flowering. They were represented by figures like Aristarchus, Aristophanes, Hipparchus, Eratosthenes, and Archimedes. From the standpoint of Aristotelian philosophy and science, of course, all this is but half of the intellectual realm; . . ."

greater adequacy than of any time before or after.²⁴ It is therefore against the Aristotelians, as they call themselves, that the propagators of modern science must fight; it is Aristotle's authority which has to be broken, so that not only mathematics but also observation and experiment can get the upper hand of bookish and scholastic knowledge. Aristotelianism then must be something more than "love of facts." That that is so, is a fact easily disregarded by those who are interested in Aristotle's biological works. Even in the sixteenth and seventeenth centuries when the philosopher Aristotle is almost forgotten or acclaimed only by theologians, the biologists still study his books and take delight in the material which they find therein.²⁵ The same is true of the eighteenth and nineteenth centuries when the aesthetic critic Aristotle and also the metaphysician Aristotle have been rediscovered: the biologist Aristotle remains in the foreground, his biological writings still are the storehouse of information. Men like Darwin or Huxley, therefore, proclaim Aristotle's authority, at the same time debasing and dethroning Plato.²⁶ Had the 158 constitutions survived which Aristotle collected, economists and sociologists would probably join the chorus and affirm that Aristotle was the first professor of political theory. But all such assertions overlook the truly Aristotelian point of view, that of the metaphysical ascendancy over facts. Aristotle opposed to observation? I do not

²⁴ J. Hjort, a scientist, not a historian, says (*The Unity of Science*, 1920, pp. 14-15): "Throughout the Middle Ages, when thought was theological, men laid the chief stress upon his (sc. Aristotle's) logical system, his ideas, his works. The paucity of available facts had to be counterbalanced by a wealth of theorising. Instead of seeking evidence of the teleological principle in nature, which Aristotle after all did to a great extent, men sought it in the world of thought alone. So it came about that in course of time the teaching of Aristotle became a hindrance to the progress of science."

²⁵ Cf. Th. E. Lones, *Aristotle's Researches in Natural Science*, 1912, pp. 4 ff.

²⁶ Cf. the famous statement of Darwin (*The Life and Letters of Charles Darwin*, III, 1887, p. 252): "From quotations which I had seen, I had a high notion of Aristotle's merits, but I had not the most remote notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere schoolboys to old Aristotle." But Darwin adds, and these words are usually not quoted: "How very curious, also, his ignorance on some points, as on muscles as the means of movement. I am glad that you have explained in so probable a manner some of the grossest mistakes attributed to him." Besides contrast T. H. Huxley, *Hume* etc., 1897, pp. viii-ix with Huxley, *Science and Education*, 1897, p. 152.

say that. He is certainly a descriptive writer of the first rank but one must never forget for what purpose the description is meant. The fact that Aristotle starts from observation does not make of him a modern scientist or a scientist at all; for he begins with the phenomena only in order to ascend to metaphysical principles.

This brief and very fragmentary survey of Platonic and Aristotelian ideas, as far as they concern scientific thought, may suffice to show that the antithesis of Platonism and Aristotelianism as it is usually formulated is not tenable. "The dreamer Plato," or "Plato, the metaphysical poet," or, *horrible dictu*, "Plato, the representative of the cults,"²⁷ the "fact-loving Aristotle"—all such concepts are false indeed because they are unfair abstractions or wholly inadequate to the facts. Nor is it possible to oppose "the philosopher Plato" to "the scientist Aristotle";²⁸ both are philosophers, even if scientific research and the evaluation of facts are differently accentuated in their systems. As regards the modern scientist, who examines the Platonic and Aristotelian philosophies in order to find out what they mean to him and to his work, he will find in both ideas which are incongruous with his own conceptions, and others with which he can agree. Whether there is, in fact, an irreconcilable opposition of Plato and Aristotle in their philosophical outlook, as has been claimed in antiquity and as is claimed nowadays—from the point of view of the modern scientist such an antithesis does not exist, or it exists only in a different sense. Platonism and Aristotelianism, both can be stimulating for him, as they have been for many an earlier generation, though in various ways. Plato will be the eternal inspiration of the mathematician, Aristotle that of the descriptive scientist or humanist. To be sure, such a concept of Platonism and Aristotelianism is also an abstraction which oversimplifies and emphasizes certain features to the exclusion of others of equal or even greater importance. Yet it at

²⁷ R. Spillmann, quoted by Silvette, *loc. cit.*, p. 1014, note 2.

²⁸ That is what is really meant by Coleridge's distinction between born Aristotelians and Platonists (cf. above, p. 758), as is clear from the following words: "Yet what a mind was Aristotle's . . . the parent of science, properly so called . . . but he confounded science with philosophy, which is an error."

least symbolizes trends which are real characteristics of Platonic and Aristotelian thinking and as such have been associated throughout the centuries with the history of Platonism and Aristotelianism.

I do not think that it could do much harm if the terms "Platonism" and "Aristotelianism" continued to be used in a way which is not at all justified by the historical data. Yet it may be appropriate to recall Lange's statement:²⁹ "Hand in hand with philosophical goes historical culture. Next to the contempt of philosophy, a Materialistic trait appears in the lack of historical genius, which is so often combined with our scientific inquiry. Nowadays a historical view is often supposed to mean a conservative one. This results partly from the fact that learning has often allowed itself, for gold and honour, to be misapplied in supporting obsolete powers, and in serving predatory interests, by pointing to departed splendours and the historical acquisition of rights hurtful to the common weal. Natural science cannot easily be misused for such purposes. Perhaps, too, the continual call for renunciation imposed by science has a bracing effect on character. In this aspect the unhistorical sense of men of science could only redound to their glory. The other aspect of the matter is, that the lack of historical apprehension interrupts the thread of progress as a whole; that trifling points of view control the course of investigations; that the depreciation of the past is accompanied by a Philistine over-estimate of the present condition of science, in which the current hypotheses are regarded as axioms, and blind traditions as the results of investigation."

²⁹ F. A. Lange, *History of Materialism*, translated by E. Ch. Thomas, II, 1880, p. 333.

