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ASPECTS OF SCHOLARSHIP AND THE LIBRARY IN PTOLEMAIC ALEXANDRIA

In a papyrus fragment we have a passage of an Attic comedy of the third century B.C., *The Phoenicides* by Strato, in which the cook is represented as using archaic, Homeric words for common everyday things, and his exasperated master is obliged "to look through the books of Philitas for their meaning".[1] This is a farcical application of the new trend of research which the scholar Philitas of Cos initiated in language studies and introduced into Alexandria early in the third century B.C. This new movement took root in Alexandria and was maintained by a distinguished line of scholars, members of the *Mouseion.* The results of their research soon crossed over to the other shores of the Mediterranean. Thus we have the bitter and rather envious reaction of Timon of Phlius, a poet residing at Pella in Macedonia who, as the representative of

[1] O. Guéraud and P. Jouguet, *Un livre d'écolier du IIIe siècle avant J.C.* 34; D.L. Page, *Greek Literary Papyri* (Loeb) I. 57 lines 42-44.

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a more conservative attitude, resented "modern" intellectual developments and attacked, not only contemporary Stoic and Epicurean philosophers, but also scholars of the Alexandrian Mouseion, "Many are feeding in populous Egypt, scribblers on papyrus, ceaselessly wrangling in the bird-cage of the Muses".[2]

The two above-mentioned passages are merely representative of a popular type of writing, the best known of which is perhaps the humorous image of Socrates in the *Clouds* of Aristophanes. This kind of writing with its bitingly malicious and scathing invective, reflects popular surprise and even resentment at new developments in ideas and major advances in science. Indeed, as an outcome of the conquests of Alexander the Great and the subsequent division of his empire, and with the massive migration of Greek-speaking peoples into the new Hellenistic kingdoms, there grew centres of learning in the new capitals and in other major cities: Alexandria, Antioch-on-Orontes, Pergamum, Tarsus, etc., in addition to the already known pre-Alexandrian centres: Athens, Rhodos, Cos, Tarentum, Syracuse, Cyrene, etc. As it happened, Alexandria soon excelled them all and the main cause behind this supremacy of Alexandrian scholarship lay in the establishment by Ptolemy I of the double foundation of the Mouseion and the Library. The inspiration came from the example of the Peripatos of Aristotle which, as is well attested, had the largest private library ever known in Greece.[3] It is obvious that the historical approach of Aristotle's diverse studies could not have been achieved without a good working library. It is not surprising therefore, that a former pupil of Aristotle, Demetrius of Phaleron should be the promoter of the new Alexandrian foundation.

Thus the right approach to learning was established in Alexandria with the Royal Library and the Mouseion as a research centre. The search for knowledge and learning is as old as man himself; indeed great works had already been done in classical Greece and the nations of the ancient Near East. But the singular aspect of the Alexandrian experience was the attitude adopted by scholars with regard to their past heritage. They deemed it of eternal value and worthy of being preserved and studied, a feat

[2] *apud* Athenaeus 22 D.
[3] Strabo XIII 1, 54; Diogenes Laertius VIII. 15.

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which was fully appreciated by the ancients themselves (e.g. Vitruvius, *De Architectura*, preface to book VII). In their attempt to achieve this goal, the accumulation of books was a primary step. But in order to render this mass of books manageable and its use practical to scholars, a catalogue had to be made. This is usually ascribed to Callimachus of Cyrene, the great poet laureate of Ptolemy Philadelphus, on the evidence of a passage in the writings of a Byzantine author called Tzetzes.[4] The passage gives details of the number of books in the two libraries of Alexandria, "not only of the Greeks, but of every other nation including the books of the Jews", and it then adds that Callimachus composed "*Pinakes*, (i.e. tables or lists) of the books". This statement obviously implies a catalogue in the usual sense of lists of books. However, an earlier writer warns us against such an assumption. An inventory of books must already have existed and one cannot expect the developed administration of Ptolemy II to have failed to provide the Library with the required registration system. Perhaps with the rapid accumulation and registration of books, a mere inventory proved cumbersome and confusing, and what was needed rather, was a critical guide to the contents of the Library in every separate field of knowledge. For this tremendous undertaking, a scholar of encyclopedic knowledge was needed and the choice fell upon Callimachus who produced the Pinakes. In support of this understanding is a statement by Suidas: "[Callimachus composed] tables of distinguished men in every field of learning and of what they wrote, in a hundred and twenty books".[5] Thus the Pinakes was essentially a survey of authors who were judged by Callimachus to have distinguished themselves in their particular field of specialization. Individual authors of every field were probably arranged in alphabetical order with a short biography and an account of their writing. Although the Pinakes has not survived and only stray fragmentary references indicate that it once existed, yet we are fortunate in that its counterpart, the Arabic *Fihrist* (=index) by Ibn Al-Nadim, has come down to us intact.

Many young scholars and students came to Alexandria, drawn

[4] Tzetzes, *Prolegomena to Aristophanes, apud* Kaibel, *Comicorum Graecorum Fragmenta*, I, pp. 28-33.
[5] Suidas, *Vita Callimachi.*

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by the unlimited possibilities of research among its unprecedented wealth of books. Although the work of the succeeding generations of scholars in Alexandria and other Hellenistic centres of learning was often influenced by the great Greek philosophic schools: the Academy of Plato, the Peritetic of Aristotle and the Stoa of Zeno, yet the development of Alexandrian scholarship revealed a markedly independent character. Whereas in philosophy the tendency was towards general rules or universal laws, in scholarship the primary concern was the study and proper understanding of the particular subject matter under consideration, irrespective of whether the result of such a study might lead to a general rule or not. A clear example of this difference can be illustrated in the field of literary criticism. The efforts, of course, of Aristotle in this field are unique and his *Poetics* is of everlasting value. After a thorough and penetrating survey of the Greek literary heritage, Aristotle laid down his conclusions as necessary rules for judging the various genres of literature: epic, tragedy and comedy.

Yet in Alexandria, their method and aim were very different; their immediate concern was the preservation and proper understanding of the work written in past ages. This was a new discipline of scholarship, which came to be called textual criticism. The various copies of the same work, in the Library, presented scholars with the problem of deciding on the correct reading of a text. The process required extensive investigation, not only into the language and diction of the poet, but also into the history and culture of the period in which the text was written. A case in point was the disagreement between two eminent Homeric scholars, Zenodotus of Ephesus and Aristarchus, both chief librarians. Their point of disagreement was over the correct reading of a word in the famous proem of the *Iliad.* The poet begins the poem with an appeal to the Goddess for inspiration and help:

> "Sing, o Goddess, the wrath of Achilles son of Peleu that baneful wrath which brought countless woes upon the Achaeans, and sent forth to Hades many valiant souls of warriors, and made themselves to be a spoil for dogs and all manner of birds."

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The contested word was the Greek for "all" which is *pasi*.[6] In its place, Zenodotus read another word, *daita*, meaning "food". Thus the translation of the last phrase would be "a spoil for dogs and food for birds". The reading of *daita* was not a mere conjecture of Zenodotus, since he doubted the authenticity of that phrase (lines 4 & 5). It is now attested that his reading was based on two factors, one, the word *dais* is Homeric and is found in the expression *daitos eises*[7] which Zenodotus explained as *daitos agathes* "good food";[8] two, on a rare concord of the three Attic tragedians when they echoed the Homeric expression.[9] They must have used in Athens in the fifth century B.C., a text with the reading *daita* and not *pasi* as in the vulgate text. And it was the word *daita* that Zenodotus adopted in his edition.

However, a century later, Aristarchus, also chief librarian as well as a most competent Homeric scholar, subjected all earlier Homeric studies to scrutinizing criticism. He found fault, not only with the reading adopted by Zenodotus, but also with his explanation of the Homeric *daitos eises.* His criticism was based on past social history and etymology. He argued that the true sense of *dais* had to be "a meal in equal portions", and he added that civilized men, as opposed to primitive people, cared for equally shared meals and even, he continued, the noun *dais* itself, derived from the infinitive of the verb, points to a deliberate "distribution"; therefore it cannot be used for uncivilized men or for animals.[10] These arguments are reminiscent of the socio-historical method of Aristotle, with the difference that Aristarchus did not aim at forming a general literary theory, his principal concern was to establish a correct Homeric text and a correct interpretation.

One of the most remarkable scholars of the earlier generation in the third century B.C. was Eratosthenes of Cyrene. He too occupied the eminent post of chief librarian and it was during his librarianship under Ptolemy III that the official Athenian copy of

[6] *Iliad* I 5 and *apparatus criticus.*
[7] *Iliad* IV 48; IX 225; *Odyssey* VIII 98; also cf. *Iliad* I 424; IV 25°, 343, 344; IX 487; XXIII 48; *Odyssey* I 225; VIII 99; X 124.
[8] Athenaeus, *Epitome* I. 12 C-F.
[9] Aeschylus, *Agam.* 1242, 1593; *Choeph.* 483; Sophocles, *Philoct.* 957; Euripides, *Cyclops* 245. Cf Pfeiffer, *HCS* I, pp. 112-3.
[10] Athenaeus, *ibid.*

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the three tragedians was secured for the Alexandrian Library. But his immortal fame was acquired through his achievements in a variety of fields of scholarship. Indeed, his versatility and many-sidedness call to mind the great humanists of the European Renaissance. His intellectual activity embraced poetry, philosophy, literary criticism, geography, astronomy, mathematics, scientific chronology, etc. He therefore preferred to be designated as *philologus* rather than the customary *grammaticus*,[11] a term applied to persons who were familiar with various branches of knowledge. For our purpose howevers, his work reveals how well he made proper use of the Library and the new instruments at his disposal in the *Mouseion*. The Pinakes of Callimachus must have proved a valuable guide in acquiring his encyclopedic knowledge. His greatest achievement was in the realm of geography, not only because of his unprecedented attempt to measure the circumference of the earth, but also because in his book, *On the Measurements of the Earth*, he tried to determine the distance of localities from each other as well as their latitude and longitude. In his main work, the *Geographica*, he showed how familiar he was with the entire earlier history of geography. As his writings have not survived, we are indeed fortunate that Strabo drew heavily upon Eratosthenes. It was Strabo, in antiquity, who reported the usefulness of the Library for his work. With regard to distances between the locality of certain places he says: "why, Eratosthenes takes all these as matters actually established by the testimony of the men who had been in the region, for he read many treatises, with which he was well supplied if he had a library as large as Hipparchus says it was".[12]

It is interesting to see how this man of science had his own independent attitude to literary criticism. In his approach to Homer and to poetry in general, he maintained that, "the aim of the poet was not to instruct, but to give pleasure."[13] Such a statement ran against the prevailing assumption about Homer "from whom all men have learnt since the beginning".[14] Neither

[11] Suetonius, *De Grammaticis* 10.
[12] Strabo II 1, 5.
[13] Strabo I 1, 10; I 2, 3.
[14] Xenophanes, in Herodian II 16. 20; Plato, *Republic* 606 E.

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did it suit the attitude of Homer's detractors,[15] for by his statement, Eratosthenes meant to confer realistic appreciation and artistic value on Homer and on all poetry. His critical approach did not pass unnoticed for, in the succeeding second century B.C., Aristarchus and Agatharchides followed this line. The latter reproduced a modified version of it, "that every poet should aim at entertainment rather than truth."[16] On the other hand Strabo, at the end of the first century B.C., after quoting Eratosthenes, immediately contradicted his statement with his own opinion, derived from the more conservative branch of Stoicism.

It is also remarkable that this scientist, while resenting Peripatetic philosophy, accepted certain aspects of Platonic and Stoic teaching. As a Platonist, Eratosthenes was in agreement with Plato's theory of "pleasure", his arguments were, however, quite different since they were those of the scientist who refused to take the geographical ideas and descriptions of the epic poet literally. As a Stoic, Eratosthenes was something of a heretic. Strabo, the orthodox Stoic, accused Eratosthenes of not mentioning Zeno, the founder of the school, but only his dissident pupil Ariston, the founder of a new branch of Stoicism in Athens.[17] It is in character that Eratosthenes was not attracted by the moralism of Zeno, but rather by the more scientific Stoicism of Ariston. Thus, it was not surprising that he was not prepared to assume hidden or allegorical meanings in Homer as his Stoic predecessors and contemporaries had done.[18]

The next great literary critic (*grammaticus*) was Aristophanes of Byzantium, who, according to his *Vita* by Suidas, grew up in Egypt and held the post of chief librarian under Ptolemy IV (221 - 205 B.C.). His thorough knowledge of the books in the Library was phenomenal, "he read each book in the Library systematically day by day with comprehensive ardour and diligence", Vitruvius

[15] Ex. Xenophanes, in Sextus Empiricus, *Adversus Mathematicos* IX 193; Heracleitus, in Diogenes Laertius IX I; Pythagoras, in Diog. Laert. VIII 21; Plato, *Republic* 377D-378 E, 398 A, 607 A. They attacked Homer on religious and moral grounds. The hostility towards Homer continued in the Hellenistic age as represented by Zoilus the Scourge of Homer (*Homeromastix*), cf. Vitruvius, *De Architectura* VII 8.

[16] *Geographici Graeci Minores*, I 8; cf. Fraser, *P.A.* II, p. 775 n. 171.

[17] Strabo I 2, 2; Suidas, *Vita Eratostheni.*

[18] Diog. Laert. VII 4; 67; IX 72; Dio Chrysostom, *Oration* 53,4.

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relates. As a judge in the competition for poets, he could detect all the borrowed lines incorporated in the various poems presented as well as identify the original works. When asked by the king to prove his point, Vitruvius continues, "Aristophanes, relying upon his memory, produced a large number of papyrus rolls (*volumina*) from certain bookcases (*armaria*), and comparing these with what had been recited, he compelled the authors to confess they were thieves" (*De Architectura*, VII.6-7).

His immense efforts in the field of literary criticism and related studies (language, textual criticism and antiquities) not only set classical scholarship on sound foundations, but also constituted a model which was meticulously maintained afterwards. The great papyrus of Pindar's *Paeans* is a splendid example of the editorial technique introduced by Aristophanes[19]; even his mistakes were faithfully preserved by his successors.[20] Not content with the performance of his eminent predecessors, he undertook, single-handed, the fundamental recension (*diorthosis*) of the texts in epic, lyric and dramatic poetry of classical Greece.

Aristophanes of Byzantium had no flair for philosophy, yet two features in his writings reveal direct Peripatetic influence. First, in literary criticism, he applied the Aristotelian theory that drama is an imitation of life. It is on this principle that he based his excessive admiration for Menander whom he ranked second only to Homer.[21] In a short comic poem, he had this rhetorical question to ask: "O Menander and life, who of you imitates the other?"[22] The second feature is the so-called *hypotheseis* with which he prefaced his editions of the tragedies and comedies. The Greek word *hypothesis* has various meanings, in Peripatetic circles it was used for the outline of the plots of plays,[23] a meaning adopted by

[19] *P. Oxy*. 841.

[20] For examples of unjustifiable emendations in the text of the *Iliad* VII 32 & X 349, see Fraser, P.A. II, p. 664 n. 102.

[21] I.G. XIV 1183 C = Menandrea, 61 C, Koerte.

[22] Menandrea 32, Koerte; cf. Sandys I, p. 130 n. 1.

[23] As by Dicaearchus, a pupil of Aristotle who wrote c. 300 B.C., in Sextus Empiricus, *Adversus Mathematicos* III 3; F. Wehrli, *Die Schule des Aristotles*, I, 1944, Dicaearchus, fr. 78. On Aristotle's *Didascaliae* concerning the winning Attic drama which was based on abstracts of the Athenian archives, see Arist. Fragm. 618-630, ed V. Rose; cf. Trendelenburg, *Grammaticorum Graecorum de arte tragica iudiciorum reliquiae*, Bonn, 1867, p. 3f.

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Callimachus when he wrote *hypotheseis* for his Pinax of the dramatic poets. But it was Aristophanes of Byzantium who gave the *hypotheseis* their final form in his introductions to individual plays, examples of which have been preserved in numerous papyri and medieval manuscripts.[24] The use of the *hypotheseis* is thus typical of the interrelation between Peripatetic tradition and Alexandrian scholarship. As the didascalic works of Aristotle and his pupils as well as the Pinakes of Callimachus are lost, we are indeed lucky that a great deal of priceless information has reached us through Aristophanes' *hypotheseis.*

Another contribution made by Aristophanes to classical scholarship was his great lexicographical work, the *Lexeis.* It ranged over all fields of literature, prose as well as poetry. The first thing a lexicographer needs is a reliable text based on the best available manuscripts; in this respect Aristophanes had the advantage over all his predecessors as his own editions of the Greek poets from Homer to Menander were within reach. It was, of course, a mutual benefit: the lexicographer's detailed research into the proper form and meaning of a word at a given time, in a special dialect, helped the editor to choose between variant readings of the manuscripts of his text.[25]

As regards method, the most interesting section of the *Lexeis* was entitled "Words Supposed to be Unknown to the Ancients", a fact first revealed in an Athos manuscript.[26] In that manuscript, the first item in this section is the word *sannas* explained as *mooros,* i.e. the fool. It is known from a large excerpt in Eustathius that Aristophanes had dealt with this rare word in its various forms and derivations as well as its possible meanings. But it was not until the discovery of the Athos manuscript that we could see how Aristophanes studied words in their historical contexts. Two classes of words were distinguished: those believed to have been used by the ancients (*palaioi*) and those believed to have been unknown to them, or the new words (*kainoterai*). By "ancients" are

[24] Trendelenburg (see previous note); Turner. Gr. Pap.
[25] Pfeiffer, HCS I, pp. 197-202.
[26] Discovered and published by E. Miller, *Mélanges de littérature grecque,* 1868, pp. 327-334; for other excerpts see H. Erbse, *Untersuchungen zu den Attizistischen Lexika,* Abhandlungen der Deutschen Akademie d. Wiss. zu Berlin, Phil.-Hist. Kl. Jg., 1949 Nr. 2, 1950 Nr. 5 *et passim.* cf. Pfeiffer, *loc. cit.*

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probably meant pre-Alexandrian writers; the "new words" seem to refer to Hellenistic authors. It is also interesting that a papyrus of the second century B.C. contains the name of Aristophanes in connection with a commentary on a poem by Hipponax of the sixth century B.C. The text of the papyrus proves that the word *sannas* in the sense of "foolish" was known to the ancients.[27]

In spite of the ever increasing troubles of Ptolemaic Egypt in the second century B.C., the high standard of scholarship was maintained and Alexandria continued to attract eminent scholars. Aristophanes was succeeded by one of his pupils Aristarchus, originally a native of Samothrace who became a citizen of Alexandria where he lived under Ptolemy VI, Philomato (180 - 145 B.C.). In accordance with Ptolemaic custom, he was appointed tutor of the young princes of the royal family and head of the Royal Library.[28] His claim to fame rests, however, upon his distinction both as a great teacher and as an outstanding scholar. As a teacher, Suidas states that he had as many as forty pupils; as a scholar he continues, "it is said that he wrote 800 books of commentaries alone." This large number of commentaries must have covered most of the Greek classics, both verse and prose. Aristarchus, we may remark, was the first to write commentary on a prose author; an example of his commentary on Herodotus I is preserved in a papyrus of the third century A.D.[30]

His most important contribution to scholarship, no doubt, was in the field of Homeric studies. He rightly earned the title of "the Homericus".[31] His method of interpretation was best described by the phrase of Porphyry, "to explain Homer by Homer."[32] His main object was to discover the Homeric usage; for the explanation of words and facts, he collected all parallels in the *Iliad* and the *Odyssey*, treating any without parallels as "only once mentioned" by the poet. But when he encountered anything which seemed not

[27] *P. Oxy.* 2176, fr. I. I; Hipponax, ed. O. Masson, 1962, fr. 118, I & commentary.
[28] *P. Oxy.* 1241, lines 11-15; Suidas, *Vita Aristarchi*; Athenaeus, 71 B; cf. Fraser, *P.A.* II, p. 477 nn. 126-7.
[29] Suidas, *Vita Aristarchi.*
[30] P. Amherst II 12 (3rd A.D.).
[31] cf. Pfeiffer, *HCS* I, p. 226.
[32] Porphyrius, *Quaest. Homer.*, p. 297. 16, ed. Schroeder; J. Bidez, *Vie de Porphyre*, 1913, pp. 31 ff.

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to fit into the pattern of Homeric language and Homeric life, he described it as belonging "to the Homeric cycle" in contrast to the "genuinely Homeric." His whole attitude was to see in Homer an imaginative and creative poet whose aim was to give pleasure and not merely to instruct.[33] In this he followed the original scientist and critic of the third century, Eratosthenes.

Perhaps it is not out of place to mention here a point of general interest, namely the origin and meaning of the word "classic." The editions made by Aristophanes were limited to a certain number of poets, and even the references in the *Lexeis* rarely go beyond a limited group of poets and prose writers. The same can be said about Aristarchus' commentaries. This cannot have happened by chance. A sort of sifting of the whole of literature, as stored in the Library of Alexandria and registered in the Pinakes of Callimachus, must have taken place. That both Aristophanes and Aristarchus played a decisive role in the process, is testified by both Cicero and Quintilian. Cicero, in a letter to his friend Atticus says: "I am like Aristophanes with the iambics of Archilochus, the longest letter of yours ever seems the best to me."[34] Quintilian's statement is more explicit: "Apollonius (Rhodius) does not figure in the *ordo* drawn by the grammarians, because Aristarchus and Aristophanes, the critics of poets, did not include in their lists any one of their own time."[35] These Latin texts of which the Greek sources are unknown, clearly state that some authors were received in and others excluded from an *ordo* established by literary critics. The tendency to select the best writers is very old; we have already noticed that the Pinakes of Callimachus was not a mere inventory of all the books in the Library, but an extensive and at the same time critical survey of only distinguished authors in every branch of knowledge. It was Callimachus who decided on the selection of those "distinguished" authors. In literature, as the statements of Cicero and Quintilian indicate, Aristophanes and Aristarchus made a selection of writers of the "first class" (*ordo*) from whose number (*numerus*) even Apollonius Rhodius was excluded.

[33] J.A. Davidson, *Homeric Criticism*, in *Companion to Homer*, 1963, pp. 220 ff.
[34] Cicero, *Ad Atticum*, XVI, II. 2.
[35] Quintilian X. I. 54.

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The Greek expression for selecting authors and registering their name in the selective list was *enkrinein*[36] which means to admit or to approve of. We should remember that these terms, in both Greek and Latin, were derived from social, political and military language. The Greek verb *enkrinein* was used for example, "to admit as elected into the council of elders"; whereas the Latin word *ordo* of Quintilian, means a social class or a military rank. But it was Cicero who adopted another term, "*classis*"[37] which was also applicable to the social division of the Roman people. Hence it became the Roman custom to call those selected authors "*classici*" which meant to the Romans, members of the "first class." This word proved more popular and was later on adopted by the scholars of the Renaissance; hence our use of the word "classic".

These selected authors, "*classici*", were commented upon by grammarians such as Aristarchus and their writings, or at least a great number of them, were copied again and again to be read in schools and by educated people. Thus the "*classici*" were saved for eternity while other authors were left to perish.

So far we have tried to illustrate the work of a number of scholars in the field of textual criticism which is generally considered to be a particularly Alexandrian creation. Other fundamental contributions towards the advancement of various sciences were also made. The brief mention of Eratosthenes, above, is an indication of the diversity of scholarly activities in Alexandria. This is not the place to present a survey of these activities; in what follows, I would only like to add a brief observation on a certain development in the study of medicine which was also typical of the city.

Perhaps an advantage which Alexandria had over other centres of study and training in medicine is that Ptolemaic patronage encouraged a more purely academic interest. In the Greek world, before Alexandria, all members of the medical profession belonged to one discipline or one tradition which was founded by

[36] Suidas, *Vita Deinarchi; Vita Pytheae.*

[37] Cicero, *Academica* II. 73, assigned certain Stoic philosophers to the fifth class (*quintae classis*).

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Hippocrates. They were generally called Asclepiadae[38] in the sense that they were the spiritual descendents of Asclepius, the divine founder of the art of healing. In the Hellenistic age, we notice that this general appellation disappears. Under the impact of new research at Alexandria and its rival capital, Antioch-on-Orontes, several medical schools or "houses" appeared. The two leading professors of "new medicine" were Erasistratus and Herophilus. Though the connection of Erasistratus with Alexandria may be disputed,[39] yet there is no doubt that Herophilus of Chalcedon had his school or "house" (*oikia*) in Alexandria. His direct pupils were described as coming "from the house of Herophilus" whereas subsequent followers of this school were called the Herophileans; as, indeed, similar expressions were applied to the followers of Erasistratus.[40] Some of the pupils of Herophilus, seem to have founded their own independent school. One of them was Callimachus the physician, whose school is mentioned by Polybius in the second century B.C. According to Polybius, the medical profession at his time in Alexandria was dominated by two schools, the Herophileans and the Callimacheans.[41]

A better known and far more interesting rival school was founded by Philinus of Cos, another pupil of Herophilus; this was the empirical school of medicine which began as a schism of the Herophileans.[42] His immediate successor, Sarapion, was a citizen of Alexandria; his role in the development of the school made Celsus regard him as its founder.[43] The contrast with the Herophileans was marked, for while the latter directed their major energy to the study of anatomy and physiology, the main interest of the Empiricists lay in therapeutics. In other words, they disregarded anatomy and physiology and claimed that basically a disease must be treated experimentally. In this endeavour, they developed their own medical doctrine based on *peira* (experience)

[38] Notice in Homer, *Iliad* IV 194 & 204, Machaon son of Asclepios, the physician, is also called Asclepiades. SEG XVI 326 (c. 360 B.C.) a decree of the guild of Asclepiadae of Cos and Cnidus erected at Delphi; Galen X 5-6.

[39] Fraser, *P.A.*, I, p. 347.

[40] *Ibid*, p. 357 & notes.

[41] Polybius XII 25 d 3,4.

[42] Galen XIV 683.

[43] Celsus, *Proem.* 10; Galen (last note).

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or direct knowledge of the circumstances of a particular case as well as precedent cures for individual cases (*historia*).[44] The gap however between these two schools was bridged in the last century B.C. by Heraclides of Tarentum, the most important Empiricist in the whole history of the school. He in fact combined the best of the two schools: he practised human anatomy and also developed surgical techniques, while maintaining the "experimental" method of cure of his school.[45] Among his known books are a work on drugs, the symposium on dietetics and a history of the Empirical school. It is to be regretted that those works have survived only in fragments, yet we are fortunate that a book was later on written by Galen on the Empirical school. Only fragments of this book have survived in Greek, but the bulk of it has safely come down to us in an Arabic translation.[46]

Training for the medical profession was a kind of apprenticeship. A papyrus of the late third century B.C. contains a contract of apprenticeship in which a certain Sosicrates, apprentices Philon, his son or perhaps manumitted slave, to a doctor called Theodotus for a period of six years to learn the art of healing in return for a fee.[47] Theodotus was apparently a doctor who had a "house" (*oikia*), in the sense of a training clinic where he both resided and practised. It is also of interest that the duration of the course was six years. It is however unfortunate that this papyrus fragment does not give us more details on the contents of the curriculum and on the system of examinations. Medicine evidently was considered a craft (*techne*) and it was customary in teaching contracts for the various crafts to have a statement stipulating how the trainee was to be tested at the end of the apprenticeship period as a check on the quality of the teaching. In addition, the fragment mentions the teaching of "healing" which implies the training of a general physician or general practitioner, in the modern sense. Are we to

[44] On the empirical doctrine, cf. Deichgraeber, *Die griechischen Empiriker*, 2nd ed. 1965, pp. 292 ff.; Fraser *P.A.* I, p. 359f.

[45] Galen XVIII a 735, praises his personal integrity as a doctor; Celsus VII 7, 68; Caelius Aurelianus, *Acut. Morb.* III 17, 142 (ed. Drabkin).

[46] Walzer, *Galen, On Medical Experience*, Oxford, 1944, gives an English translation of the Arabic text.

[47] P. Sattler, *Gr. Pap. u. Ostr. der Heid. Papyrus-Samml.*, herausg. von der Heid. Akad. der Wiss. Phil-Hist. Kl. 3 (1963), p. 12, Nr. 2 (215-213 B.C.).

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understand thereby that specialization required a more advanced course at the end of the general course in "healing"? Medical specialization, so Herodotus tells us,[48] was highly developed in Pharaonic Egypt. He mentions that there were specialized doctors for the eyes, the head, the teeth, the stomach and even for what he calls the "invisible diseases" which probably implies disturbances in the nervous system. The Egyptian specialist possessed a secure and superior social position. A papyrus fragment of the second century B.C. sheds some light on specialized training in Alexandria. It is a letter from a woman to a man (probably her husband) and runs as follows: "I understand you studied the Egyptian language. I congratulate you and myself, because now you will go to the city (Alexandria) and teach pupils at the teaching clinic of clyster-specialists of Phalu, and you will have provision for your old age."[49] This papyrus presents us with an interesting situation. Beside the previously mentioned "teaching houses" of the Greek doctors, we have here an Egyptian clyster-specialist Phalu, who had his own training establishment in Alexandria. The bilingualism of the city faced him with the problem of having Greek speaking persons among his pupils. In order to overcome the language barrier, he secured the employment of a Greek who also knew Egyptian to help him instruct those pupils.

In addition, this document provides evidence on the possibility of interchange of medical experience among Greek and Egyptian physicians. This fact may lead us to a final observation on the personnel in academic and professional circles in Alexandria. We should remember that we are at a disadvantage in this respect since we depend, for our information, almost exclusively on Greek sources. Nevertheless, they permit us, in their abundance, to envisage a certain feature which generally prevailed in the intellectual life of the city and that is, internationalism. From the beginning of the third century onward, we have a flow in varying degrees of Greek-speaking scholars and men of letters from various parts of the Mediterranean pouring into the city: Demetrius of Phaleron (Athens), Callimachus and Eratosthenes of

[48] Herodotus II 84.

[49] UPZ 148 = Rémondon, "Problèmes du bilinguisme dans l'Égypte lagide", *Chronique d'Égypte* 39 (1964), pp. 126-146.

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Cyrene, Theocritus of Syracuse, Herophilus of Chalcedon, Philinus of Cos, etc. Many of these intellectuals from foreign lands finally settled in Alexandria and became citizens, as can be seen in the case of Aristarchus, the fifth head of the Library who was originally from Samothrace and became Alexandrian by adoption.[50] This phenomenon does not seem to have developed only at the end of the third and during the second century B.C.,[51] for as early as the beginning of the third century B.C. we hear of distinguished intellectuals from Alexandria. Euclid for example, who lived under Ptolemy I, is not identified with any other city but Alexandria where he taught and where his pupils continued to teach after him.[52] Apollonius, author of the *Argonautica*, who may have held the librarianship as early as 270 B.C., was of Alexandrian origin; after his exile from Egypt, however, he settled in Rhodes and acquired its citizenship.[53] Ctesibius, the ingenious deviser of the water clock, was born in Alexandria and flourished about the middle of the third century B.C.[54] In the third quarter of the third century B.C. we meet with Sarapion of Alexandria who played a vital part in the development of the Empirical school of medicine. His name indicates that he may have been of Greco-Egyptian background. The Herophilean school also claimed the membership of more than one person of the eminent Alexandrian family of Chrysermus.[55]

Egyptian participation in the intellectual life of the city was necessarily limited at the beginning, yet not totally lacking. The name of Manetho immediately comes to mind as the first Egyptian to join the ranks of members of the Mouseion early in the third century B.C. In the second century, we mentioned Phalu, the Egyptian physician who had his training clinic in the city. Yet the rarity of pure Egyptian names in the intellectual life of Alexandria even in later generations, may be partly due to the growing custom of adopting Hellenised names among Greek-Egyptian families and

[50] See note 28.
[51] As suggested by Fraser, *P.A.* I, p. 359.
[52] Ivor Thomas, *History of Greek Mathematics*, pp. 154-6 & 488.
[53] Suidas, *Vita Apollonii.*
[54] Vitruvius, *De Architectura*, IX, VIII, 2.
[55] One Chrysermus in the second century B.C., Inscriptions de Delos 1525, probably ancestor of another of the first century B.C., Sextus Empiricus, *Hyp. Pyrr. (Outline of Pyrrhonism)* I. 84. (Loeb).

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partly also, to the utter lack of Demotic documents from the city.

However, this collection of names, with their mixture of ethnic designations, is perhaps proof enough that internationalism prevailed in the academic circles of Alexandria. This characteristic feature continued to be noticeable until after the fall of the Ptolemaic dynasty. Very early under the Roman Empire, Strabo favourably compared Alexandria with other centres of learning; "Among the Alexandrians both phenomena exist, they receive many foreigners and send not a few of their own people to complete their training abroad."[56]

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(*Alexandria*)

[56] Strabo XIV 5, 13.

For background reading of basic studies and data on Alexandrian scholarship in general the reader may consult the following works:

Fraser, Peter M. *Ptolemaic Alexandria*, 3 vols., Oxford, 1972.

Pfeiffer, Rudolf. *History of Classical Scholarship*, 2 vols. Oxford 1968-1976.

Sandys, Sir John Edwin. *A History of Classical Scholarship*, 3 vols., Cambridge, 1906-8, reprinted 1968.

Turner, Eric G. *Greek Papyri: An Introduction*, Oxford, 1968.

Wilamowitz-Moellendorff, Ulrich von. *History of Classical Scholarship*, 2nd ed. Teubner, 1927, reprinted 1959; translated from the German by Alan Harris, with introduction and notes by Hugh Lloyd-Jones, London, Duckworth, 1982.

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