

THE ROLE OF HIPPOCRATES IN THE DEVELOPMENT AND PROGRESS OF MEDICAL SCIENCES

SAMIR YAHIA EL-GAMMAL*

ABSTRACT

Greek relations with Egypt dates back to before 2000 B.C. The early Greek known systematic medicine began with the legendary Asclepius, the Greek God of Medicine. Round the 7th Century B.C. many Greeks migrated to Egypt. Many of them came to Egypt to study all kinds of sciences. Greek and thence the European medicine started with the age of Pericles. Its progress centred in Hippocrates, the most famous Greek physician. He founded the Coan school at Cos about 430 B.C. Hippocrates separated Greek medicine from superstitions, magic and religion. He is called the father of Greek medicine. He wrote several books, the most famous of them is "The Collection" formed of 30 volumes. He exacted an oath of medical ethics also. After 300 B.C. the Hippocratic collection began to circulate, and in it was thrown everything that could by any device be passed off as of Hippocratic origin. Many medical schools were founded in Greece, which pushed medical sciences into much progress and development.

Greek relations with Egypt dates back to those days when some parts of Greece were occupied by the Egyptian troops before 2000 B.C. such parts as Crete, Cyprus and probably the Greek main-land. Civilisation followed invasion and a great deal of Greek medicine was obtained from the ancient Egyptians.

Kahun papyrus (c. 2000 B.C.) speaks of women diseases as due to morbid states in the uterus in a very similar manner as that found in Hippocrates' works such as "De Morbis Mulierum", 2nd book. Edwin Smith surgical papyrus describes skull injuries, systematically arranged in a way recalling the Hippocrates' book

* Pharmacist, Researcher in the History of Medicine & Pharmacy,
P.O. No. 136, Maadi, Cairo, Egypt.

"De Capites Vulneribus" (the papyrus dates to 1550 B.C.). Also the symptoms in different organs accompanying affections of the stomach mentioned in Ebers papyrus (1550 B.C.) may be compared with those stated by Alexander Trallianus (VII, Chap. 1) (6-7th centuries A.D.) The tumour section in Ebers papyrus resembles one of Galen's books "De Tumoribus Contranaturum", and many other examples.

The early Greek known systematic medicine began with the legendary Asclepius, the Greek God of medicine (Aesculapius to the Romans), who is believed to be living round the 11th century B.C., healed the sick and restored the dead to life. Epidaurus was the chief seat of his worship, from whence it extended to Rome in 293 B.C. The Asclepiadae (i.e. the descendants of Asclepius) were medical priests having their principal seats in Cos and Cnidus.

Asclepius attribute was a stalk with a snake coiled around it (because the snake, since it sloughs its skin, was supposed to renew its youth). Sacred snakes were kept in sanctuaries of Asclepius at Epidaurus and else where. The customary offering was a cock (same as was the customary offering to Imhotep... the Egyptian God of medicine . . was also the bird Ibis).

The chief temples of this cult

were at Cos, Epidaurus, Cnidus and Pergamum. They were commonly situated on wooded hills or mountain sides, near mineral springs, and thus became popular sanatoria, managed by trained priests.. who stir in the patients their imaginations by counting the deeds of Asclepius all about the success of the temple treatment and the remedies employed. The patient was purified by a bath from the mineral spring with massage, inunction and the like. After the sacrifice, he was conducted into the special rite of incubation or temple sleep (many of the patients were actually having hysteria, barren women seeking the God's help for offspring. etc).

Round the 7th century B.C., many Greeks migrated to Egypt, forming a colony in Lower Egypt called Naucratis, linked Egypt and Greece with trade. Many of the Greeks of the main-land came to Egypt to study all kinds of sciences which were taught in many temples. Of these famous universities (as we may call it, since it harboured many schools in each temple), were those at Oun (Heliopolis), Memphis, Sais, Abydos, Thebes. etc. Thus all of the ancient Egyptian civilisation was quoted by these Greek students who transferred it back home and spread it every where.

Greek philosophy before Pericles (?495-? 429 B.C.) was also partly

derived of Ionian origin, Pythagoras of Samos (580-489 B.C.) studied in Egypt, whence he probably acquired his doctrine of the mystic power of numbers and the doctrine of transmigration of souls or metempsychosis. He regarded the brain as the central organ of higher activities and founded the Italian School of philosophers in Crotona.

Greek and thence the European medicine started with the age of Pericles. Its progress centred in Hippocrates. The medical school at Cnidus was established between 700 and 600 B.C., and was mainly concerned with symptoms as dissociated from the patient. Later on, Hippocrates founded the Coan school at Cos (round 430 B.C.) where disease was recognised as the result of natural causes, and where observation of symptoms and their relation to the patient and environment were studied and became the foundation of clinical medicine. The humoral theory was postulated here

After 300 B.C. the Hippocratic Collection began to circulate, and in it was thrown everything that could by any device be passed off as of Hippocratic origin. But dubious in its origin, the Collection had not remained intact as it suffered accretion and loss. The Collection was made of thirty books, of these only 12 were scrupulously studied.

Theophrastus of Eresos (?372-?287 B.C.), the Protobotanist, did for the vegetable kingdom what Hippocrates did for medicine. His famous book "De Historia Plantarum" contained descriptions of more than 500 different plants.

Many medical schools were founded in Greece which pushed medical sciences into much progress and development, of these;

- 1- School of Philosophy : was founded round the 7th century B.C. in Ionia (on the eastern coast of the Aegean sea), its leaders were; Thales of Miletus (?624-?546 B.C.) Anaximander of Miletus (611-547 B.C.) and Heraclitus of Ephesus (?535-? 475 B.C).
- 2- Eleatic School : was founded round the 6th century B.C., in the Greek city Elea of lower Italy; of its chief exponents : Parmenides and Zeno.
- 3- Cnidian School : was an early school preceding that of Hippocrates. It listed symptoms without coordination and with haphazard therapeutics.
- 4- Sicilian School: its members were devoted to animal dissection and stressed on diet regulation. Its leaders were Acron of Agrigentum (5th century B.C.) and Philiston (4th century B.C.).

- 5- Peripatetic School : pertaining to the philosophy of Aristotle (384-322 B.C.) who taught while walking up and down in the Lyceum at Athens.
- 6- Dogmatic School: was founded at Cos and the first of the post-Hippocratic schools of medicine in which, the open-minded spirit of Hippocrates' teachings merged with strict formalism which cared more for the rigid doctrine than for investigation. Chief members were; Diocles of Carystus (400 B.C.) Paraxagoras of Cos. The Dogmatists divided medical science into five branches; physiology, etiology, hygiene, semeiology and therapeutics.
- 7- Stoic School : was founded by the disciples of the philosopher Zeno (340-260 B.C.) at Athens. Later Roman Stoics were Cato the younger, Seneca and Marcus Aurelius. (Zeno opened his school in a colonnade called Stoa Peikile at Athens).
- 8- Epicuric School : was founded by the followers of Epicurus (341-270 B.C.) who was a Greek philosopher that taught .. "pleasure is the chief good thing in life".
- 9- Empiric School : it was the second of the post-Hippocratic schools of medicine, founded in Alexandria, Egypt under the leadership of Philenos of Cos and Serapion of Alexandria (c. 280 B.C.). As opposed to the Dogmatists they declared that the search for the ultimate causes of phenomena was vain, but they were active in endeavouring to discover the immediate causes. They paid particular attention to the totality of symptoms and clinical observation and were guided in their therapeutics almost entirely by experience.
- 10- Methodic School : It was founded by Themison (c. 50 B.C.), and was based on the practice of the art of medicine on exact rules and theories as contrasted with experience. This school followed that of the Empirics and Dogmatists but concentrated its attention on the pores.
- 11- Pneumatic School : it was founded by Athenaeus (who practiced medicine in Rome round the middle of the first century A.D.). Its style was based upon the action and constitution of the Pneuma (or vital air) which passed from the lungs into the heart and arteries, and was thence disseminated throughout the body. Some members of this school were Agathinus of Sparta. Archigenes of Apamea, Aretaeus of Cappadocia and Antylus.

Concerning those Greek scholars who played a great role in the development of medical sciences in Greece and Rome and thence to the European civilisation, the most famous of them were;

Hippocrates : (460-377 B.C.) most famous Greek physician, born on the island of Cos. He studied medicine as a pupil of his father Heraclides who was a physician in the Asclepeion of Cos (which was established by Thales a century ago). He also studied medicine under Democretus. He went to Egypt, studied medicine in the famous Heliopolis and Memphis medical schools, then went back home, and established a famous medical school in Cos a round 430 B.C. after practising for some time in the Asclepeion of Athens

Hippocrates followers established a medical school after his death which they called Hippocrates School, and was in fact an extension of Thales School. It soon lost its vitality and concentrated on some incorrect physiological informations as a basis of systematic explanations in medicine.

Hippocrates separated Greek medicine from superstitions, magic and religion, thus formed a new scientific basis for medicine and declared that treatment depends on clinical observation and scientific experimentation, that will reveal the causes of the disease and suggests the proper treatment.

He also combined together the theory of the four elements with his own theory of the four humours; blood, phlegm, black bile (melancholy) and yellow bile (Choler).

He is called the father of Greek medicine, and was a man of high character and noble ideas. At the beginning of the Peloponnese war (431-404 B.C) between Athens and Sparta, Hippocrates is said to have saved Athens from a dreadful pestilence. He travelled throughout Greece and died at Larissa in Thessaly. He was a careful and observant physician and a strong believer in surgery.

Hippocrates' Coan School of medicine (established on the island of Cos was competing heavily with the earlier Cnidian school of medicine (established on the Cnidian peninsula, just opposite to Cos (both in Asia Minor). The Cnidian school had its chief physician Euryphon, while the Coan school had Hippocrates as its chief physician, both were contemporaries.)

The Cnidian school (in Cnidus) considered the classification of diseases as fundamental without sympathy with pathology and prognosis. Such classification was wrong in many cases and hence the treatment was consequently wrong. When classification was based on symptoms, then any variation of these symptoms occurs, will bring variations of disease,

and so the Cnidian followers could not distinguish between the essential and the non essential symptoms.

While the Coan school (in Cos) took more interest in prognosis, and its doctrines were valuable to scientists, very suggestive, inspiring and admiring.

Hippocrates founded the Dogmatic school in Cos, of its famous pupils were; Polybus (his son-in-law), his son Thessalus (the private physician of Archelaus, king of Macedonia), Diocles and Praxagoras (c 350 B.C., successor and Diocles and the teacher Herophilus). Hippocrates had another son Desachinus whom he also taught medicine.

Hippocrates medicine depended entirely on experience and clinical observation of the patients, which shows that medical art has grown through the way of observing the patient's needs and causes of the diseases, and not on some philosophical theories on the causes of the diseases. The patient's diet was of very great importance to his practice, especially in acute diseases, and any alteration in this diet may be made according to the appearance of side effects due to unappropriate food, specially in case of fevers. So to this observation of food intake on the patients and its influence on sick people so as to suit his physical condition, tremendous progress to the art of therapy was achieved

He also approved upon the theory of the elements same as has been with his predecessors in which, each person was formed of four elements (humours) :

Blood; comprises the hot humid property.

Yellow bile; comprises hot dry property.

Black bile; comprises cold dry property.

Phlegm; (produced in the brain), comprises cold humid property.

Although all these four humours do not exist in every person in the same proportions, yet health depends on the amount of admixture of these humours together, and disease occurs if an unusual cumulation of one of them develops, and although this body disturbance is limited to a certain part, yet the symptoms appears all over the body. This can be corrected with the intake of suitable food that brings back balance to the body humours.

So, the theory of the four humours and the body side effects that occurs in case their proportions are unbalanced, represented the back bone for medicine for nearly 2000 years and became a part of the living heritage of Europe.

Although this theory did not gain much approval in the Greek medicine,

yet it was highly acceptable to Galen and later to Avicenna... that Islamic physician of the 11th century A.D., and was not opposed until Paracelsus proved that it is not based on any true medical basis, but still the belief in the occurrence of diseases as a result of the disturbance in distribution of these humours in the body remained fixed in the mind of the scientists for a longer time.

Hippocrates showed that the human body is made of one integrated unit and if a part of it gets diseased, then the other parts will be affected eventually and becomes sick, as could be understandable from the theory of the four humours, in which he found it most explicable to those accurate observations on how diseases began.

So, a distinctive part of philosophical theories was introduced to the art of healing through Hippocrates in Greece in contradiction to that medicine in ancient Egypt and the Babylonians who were very practical in their therapeutical theories and did not care much with such useless theories

Yet, Hippocrates has showed in his medical volumes that diseases occur due to natural causes and one must find ways of eliminating such causes, which represented a preliminary step to the right way to medical treatment. Also, it shows to the world

how keen he was and accurate in his observations of the symptoms inspite of the little knowledge he had in his time about anatomy and physiology.

He also showed that epilepsy... that sacred disease which was often thought to occur due to a blow from an evil spirit, is merely another disease that happens due to a natural cause in the same way as other diseases. He declared that the blood of the right side of the heart is dark and that of the left side is bright red.

In one of his compilations, "Medicatrix Naturae", Hippocrates mentioned all of the philosophical theories that preceded him and linked them to the new medical concepts and thoughts that were spreading in his time, and also laid down some special theories about nature as a congregation of the vital forces in the internal organs of the living creatures.

Also, Hippocrates considered the cardiac aurecles as tools by which air gets inside the body, and are the creation of a very skilled creator, and nature could discover these ways without understanding or thinking and also could produce the glands and hair, and ways of antagonizing death, and also creates the natural species and languages by which all creatures uses. Also, in case of diseases, nature is able to hide their symptoms but is forced to reveal it in case of much pressure.

Hippocrates states also in some of his works many valuable informations about zoology and identified a kind of a general primary classification of plants and animals. He discusses brilliantly many forms of plant and animal species.

He wrote several books, the most famous of them is "The Collection", formed of 30 volumes, of them 12 were studied extensively namely: on foetus, nature of man, airs... waters and places, aphorisms, prognostics, acute diseases regimen, gynaecology and obstetrics, epidemics, humours, nutrients, physician's establishment, fractures. This book became wide spread but with time, it was neglected. The Arabs translated parts of an old copy of it which they found in Asia Minor and Sicily. Hippocrates considered that anatomy is of vital importance to medical education, but by time, it was neglected till it was revived by the Arabs. (the Collection contained 87 treatises).

Other compilations of Hippocrates are divided into groups;

Group A :

1. Text books for physicians.
2. Text books for laymen.
3. Pieces of research or collection of materials for research.
4. Lectures or essays for medical students and novices.

5. Essays by philosophers who were perhaps not practicing physicians, but laymen interested in medicine and anxious to apply its methods of philosophy.

6. Note-books or scrap-books.

Group B : about 34 works which do not display to any marked degree to the Hippocratic characteristics, but are nevertheless practical hand-books of medicine, physiology or anatomy;

surgery, the heart, places in man, glands, anatomy, nature of the bones, sight, dentition, diseases I, diseases II & III (represents the influence of Cnidian school), affections (shows also the influence of the Cnidian school), internal affections, sores, fistulae, hemorrhoids), prorrhetic II, the physician, crisis, critical days, purges, use of liquids, seventh month child, eighth month child, generation, nature of the child, diseases IV, diseases of women, barrenness, diseases of girls, nature of women, excision of the foetus, supertoetation, regimen in health, regimen II & III with dreams.

Group C : with the philosophical elements which predominates over the scientific; nutriment, regimen I.

Hippocrates exacted an oath of medical ethics, which he quoted entirely from that oath of Thoth of the Egyptians, and states :

"I swear by Apollo the physician, by Aesculapius, Hygeia and Panacea, and I take to witness all the gods, all the goddesses, to keep according to my ability and my judgement the following Oath' To consider dear to me as my parents him who taught me this art, to live in command with him, and, if necessary to share my goods with him, to look upon his children as my own brothers, to teach them this art if they so desire without fee or written promise, to impart to my sons, and the sons of my master who taught me and the disciples who have enrolled themselves and have agreed to the rules of the profession, but to those alone, the precepts and the instruction. I will prescribe regimen, for the good of my patients according to my ability and my judgement and never to harm anyone. To please no one will I prescribe a deadly drug, nor give advice which

may cause his death. Nor will I give a woman a pessary to procure abortion. But I will preserve the purity of my life and my art. I will not cut for stone, even for patients in whom the disease is manifest; I will leave the operation to be performed by practitioners (specialists in the art). In every house where I come, I will enter only for the good of the patients, keeping myself far from all intentional ill-doing and all seduction, and especially from the pleasures of love with women or with men, be they free or slaves. All that may come to my knowledge in the exercise of my profession, or outside of my profession, or in daily commerce with men, which ought not to be spread abroad, I will keep secret and will never reveal. If I keep this oath faithfully, may I enjoy my life and practice my art, respected by all men and in all times; but if I swerve from it or violate it, may the reverse be my lot."

REFERENCES

1. ANDRER-POINTIER, L.; Histoire de la Pharmacie, Paris, Doin, 1900.
2. BAISSETTE, G.; Hippocrate, Grasset, Paris 1931.
3. BOISSIER, R.; Histoire Genrale de la Medecine, t I. Paris, 1936.
4. BOURGEY, L.; Observation et experience chez les medecine de la "Collection Hippocratique", Paris 1953.
5. BOUVET, M.; La Pharmacie dans L'Antiquité, Paris 1940.
6. BURNET, John; Early Greek Philosophy, London 1920
7. CASTIGLIONI, Arturo; A History of Medicine (translated from the Italian by E. B. Krumbhaar, 2nd edition, Routledge, London 1947.
8. DAREMBERG, C. V.; Histoire des Sciences Medicales, Paris, Baillière 1870.
9. DAWSON, Warren R; Studies in Ancient Materia Medica, New York 1925.
10. DUMESNIL, R.; Histoire illustrée de la medecine, Paris, Plon 1935.
11. FESTUGIERE, A. J.; Hippocrate, L'Ancienne Medecine; Introduction, traduction et commentaire, Paris 1948,
12. GARRISON, F.H.; Introduction to the History of Medicine, Philadelphia 1921.
13. JONES, W.H.S.; and WITHINGTON; Hippocrates, 4 vol., London, Heinmann 1923-31 (Texts).
14. LAIGNEL-LAVASTINE; Histoire Generale de la Medecine, de la Pharmacie, de L'Art dentaire et de L'Art veterinaire, 2 vol., Paris, Michel, 1936-1938.
15. LITRE, Emile; Ouvres complètes d'Hippocrate, 10 vol., Paris 1839-1861.
16. METTLER, Ceilia C.; History of Medecine, Philadelphia, 1947.
17. ROUANET, G.; La Medecine d'Hippocrate, Guerir 1938.
18. SIEGERIST, H.E.; History of Medecine, New York, Oxford Univ. Press, vol. 1, 1951.
19. SINGER, C; Greek Biology and Greek Medecine, Oxford, Clarendon Press, 1922.
20. SINGER, Charles; Greek Biology and its relation to the rise of modern biology, Oxford 1921.
21. SINGER, Charles; Short History of Medecine, London 1962.
22. TAYLOR, Henry Osborn; Greek Biology and Medecine, New York, 1922.
23. URDANG, G.; Pharmacy in Ancient Greece and Rome, (Am Jour. of Pharm. Education, I. t. 7 (1943).

सारांश

चिकित्सा विज्ञान की उन्नति एवं प्रगति में हिप्पोक्रेट्स की भूमिका

—समीर याह्या अल गम्माल

मिस्र व यूनान देशों के संबंधों का इतिहास ईसा पूर्व 2000 वर्ष से भी अधिक प्राचीन है। पूर्वकालीन यूनानियों को प्राप्त व्यवस्थित चिकित्सा विज्ञान को जानकारी का प्रारंभ इस शास्त्र के कीर्तिशाली यूनानी देवता एस्क्लेपियस से हुआ ऐसा माना जाता है। ईसा पूर्व 7 वीं शती के आसपास बहुत से यूनानियों का मिस्र को देशांतरण हुआ। उनमें से बहुत से अनेक प्रकार के शास्त्रों के अध्ययन के लिये मिस्र पहुँचे थे। पेरीकल्स के समय से यूनानी तत्पश्चात् उससे योरोपी चिकित्सा पद्धति की शुरुआत हुई। इस चिकित्सा विज्ञान की प्रगति का केन्द्रबिन्दु सुप्रसिद्ध यूनानी चिकित्सक हिप्पोक्रेट्स था। इसने ईसा पूर्व 480 वर्ष के आस पास कोस में कोबान स्कूल की स्थापना की थी। इस ने यूनानी चिकित्सा विज्ञान को अन्धविश्वास, जादू-टोना तथा धर्म से पृथक किया। अतः हिप्पोक्रेट्स को यूनानी चिकित्सा शास्त्र का प्रवर्तक माना जाता है। इसने अनेक ग्रंथों की रचना की, जिनमें से “घी कलेक्शन” सर्वाधिक प्रसिद्ध है, जो कि 30 भागों पर आधारित है।