

GREEK MEDICAL BELIEFS

"Nothing is more difficult than a beginning" wrote Byron of Poetry, and this remark fitly applies to my case, for although the material is abundant, indeed bountiful yet it is very difficult to sift what is really Greek from what has been borrowed by them from other cultures such as the Egyptian, Minoan and Assyrian. Contrary to what is held by many the medical knowledge of these people was relatively well developed, as can be seen from certain Egyptian papyri which described surgical procedures demanding considerable anatomical knowledge, and from that masterpiece of Assyrian art, "The Dying Lioness", originally found in the palace of Assurbanipal, depicting the lioness with a severed spinal cord from the arrows of her attackers crawling, dragging her paralysed hind limb behind.

The seeking of medical knowledge in a scientific way was however initiated by the Greeks, for the Assyrians, Egyptians and others sought it for religious practices; besides it was traditional with them that the doctor and the priest be one and the same person, while in the case of the Greeks they were two different persons with two distinct though not decidedly separate functions, for the gods had a great say in bringing about cures. The chief god of health was Zeus but there were many other subordinate gods who were very popular. The most important of the latter was Aesculapius whose special province was the conservation of physical health. He was said to be the son of Apollo and Coronide and was born according to Homer and Pindarus while his mother was being burnt by Apollo for having been unfaithful to him. Pausanius relates a different story: he says that the child was born in secret while Coronide was visiting the Peloponesian

islands with her father Flegias, and abandoned him on the mountain Titthion where a goat fed him until a shepherd found him. Soon concludes Pausanius, it was known throughout the world that the child was able not only to cure all ills but also to resurrect the dead. He is represented with a serpent around a rod. His most important temple was at Epidaurus where the principle cure was the so called "incubatio" which consisted, after the patient had made a sacrificial offering and purified himself by bathing, in the so called abaton, a long colonnade open to the air on each side. During the sleep the god appeared to the patient and counselled the remedy or cured him. A stela of 300 B.C. found at Epidaurus, undoubtedly done by the priests for propaganda purposes, had inscribed various healings, among which were:

Case 1: Kleo had been pregnant for 5 years. She slept in the sacred limits and when she came out gave birth to a child who immediately went to wash himself into the fountain and then walked away with his mother.

Case 15: Hermodikes of Lampskos was paralysed in body. In his sleep he was healed by the gods, who ordered him to bring to the temple as large a stone as he could when he left the abaton. The man brought the stone, which now lies before the abaton (and can still be seen to this day).

Case 3: Hereo of Militene had no hair; he slept in the abaton and during his sleep the god anointed his head and hair grew.

We will now take a look at some of the Greek medical theories which had such a great influence on the future development of medicine. The first Greek to begin constructing a positive

basis for medical science was Alcmaeon who lived around 500 B.C. as a native of the Greek colony of Croton in southern Italy. He was one of the first to use dissection of animals to obtain a scientific knowledge of the animal body. He discovered in the goat such things as the optic nerve and the Eustachian tube, which should therefore be more correctly named after him. He however gave to the Eustachian tube a respiratory function so that he is said to have taught that the goats inspired through their ears. He also did some research on embryology, mostly of the chicken.

Very important for his great influence on later thought was Empedocles of Acragas, who lived in Sicily. He put forward the idea, no doubt obtained from folk belief that life is heat and blood is hot, of the innate heat which, he said, resides in the blood. We find this idea continually recurring in Greek thought; for example to one of the questions in the book of problems of Marcus Antonius Sanctipertias, "Why have beasts their hearts in the middle of their chest, and man his inclining to the left?" the answer is "To moderate the cold on that side due to the spleen". Also in Aristotle: "Why are beasts bold that have little hearts?" "Because in a little heart, the heat is well united and vehement, and the blood touching it doth quickly heat it, and is specially carried to the other parts of the body which give courage and boldness." The teachings of Empedocles also put forward the belief of the heart being the centre of the vascular system and also the chief organ of the pneuma, which was distributed to the body by means of the blood vessels. This pneuma was both life and soul, but it was something more. It was identical with air breath and of every psychic quality of the human individual; it was seen to rise as a shimmer-

ing stream from the shed blood of the sacrificial victim. This view that the heart was the main site of the pneuma was rejected by the Coan school (a group of medical writers who came into prominence in Western Asia Minor during the 5th century) whose works have since been fathered on Hippocrates of Cos.

The idea of the 4 humours corresponding to the 4 elements (Fire, Water, Earth and Air, which make up non-living matter) was developed somewhat later around the 4th century. We find a good description of this theory in one of the treatises of the Hippocratic Corpus or Collection, namely "On The Nature Of Man". In it the author Polubus a son-in-law of Hippocrates, states that the body is constituted of the 4 elements blood, phlegm (pituita), black bile (melancholia) and yellow bile (chole) and that these are, both nominally and essentially, always the same and unchanging in youth as well as in age, in cold weather as well as in warm. He also adds that disease is produced as a result of abnormally heated, cooled, dried or moistened elements, or due to a separation of one element from the rest or to an excessive loss of an element outside the body. This history was further developed by Aristotle, who taught that there were 4 primary and opposite fundamental qualities, the hot and cold, the wet and the dry. These met in binary combination to constitute the 4 elements.

All the gross organs of the body were assigned specific functions, thus the lung is said to function as bellows fanning the heat in the heart; the spleen as the seat of melancholy, while the liver was the seat of love and the teeth were said to be sensitive as that they were capable of discerning heat and cold. The mind, however, was not given much importance by the Greeks generally speaking, although there were

some as Plato who in his *Timaeus* did indicate that it was the seat of thought and feeling.

Most of the importance was given to the heart which was said to be the principal organ and seat of intelligence, while the mind prevented the heart from becoming too overheated by secreting phlegm or pituita, the term being still used in modern nomenclature for the pituitary gland. For such ills as apoplexy, madness, headaches and migraine the serious surgical operation of trephining was performed; a good description of it is found in "Wounds of the Head".

Up to 1865 this operation was thought to have originated amongst one of the ancient cultures, but in that year a Dr. Prunieres of Marvejols found in a dolmen at Aiguieres in Central France a neolithic skull bearing in the occipital region a large artificial opening with smooth edges. Dr. Prunieres thought that this skull had been used as a drinking cup, a common practice among the prehistoric people, but further research by Prof. Broca in Paris on such skulls found in Brittany, showed that these were in fact skulls which showed that they had been trephined while the patient was alive, as the edge showed signs of healing. The skulls of these persons were very sought after on the death of the owner because parts of the skull, including parts of the trephined edge were cut and used as charms against madness and other mental diseases. A piece of the edge was however always left on the original skull to serve the owner as protection in the other world.

The anatomical knowledge of the Greeks was, before the advent of Aristotle, very rudimentary as can be understood from the treatise "On The Nature Of Man". The author describing the blood vessels in the body states that they consist of 4 pairs of a large

calibre: one pair running from the back of the head through the neck, and weaving its way externally along the spine, passes into the legs and traverses the calves and the outer aspect of the ankle and reaches the feet. The second pair of blood vessels run from the head near the ears through the neck, where they are known as jugular veins. Thence they continue deeply close to the spine on either side. They pass close to the muscles of the loins, entering the testicles and the thighs. They then traverse the popliteal fossa on the medial side and passing through the clavicles lie on the inner aspect of the ankles and feet. The third pair of blood vessels run from the temples through the neck and under the shoulder blades. They then come together in the lungs; the right one crossing to the left and the left crossing to the right. The right hand one proceeds from the lungs passes under the breast and enters the spleen and the kidneys. The left hand one proceeds to the right on leaving the lungs, passes under the breast and enters the liver and kidneys. Both vessels terminate in the anus. The fourth pair run from the front of the head and the eyes, down the neck and under the clavicles. They then course on the upper surface of the arms as far as the elbows, through the forearms into the wrists and so into the fingers. They then return from the fingers running through the ball of the thumb and forearms to the elbows where they course along the inferior surface of the arms to the axilla. Thence they pass superficially down the sides, one reaching the spleen and its fellow the liver. Thence they course over the belly and terminate in the pudendal area. In another treatise "The Sacred Disease", the author states that to the brain come many blood vessels most slender, but two stout. One of the stouter is said to come

from the liver while the other from the spleen. This may have been an erroneous substitution by the copyist at Alexandria, where the Hippocratic Collections were edited, for from the side of the liver and from the side of the spleen, but on the contrary it may just as well have been from the liver and from the spleen for they may have easily argued that love and melancholy, which had their seat in the liver and the spleen respectively, were carried to the brain by these vessels there mixed, bringing about moderation (coldness), which was the property ascribed to the brain.

Aristotle improved greatly on the anatomical knowledge of the time with his dissections, mainly of animals. He gave good descriptions of many organs including the male organs of generation. He also described the uterus, his nomenclature being more or less retained. Aristotle however, as all those before him and a good number after him, failed to differentiate between arteries and veins. He also believed that the vessels contained air besides blood. It was not until the time of Erasistratus of Alexandria, the father of physiology, that the distinction between the arteries and veins was understood and pointed out.

Besides the conventional subjects of medicine, the Greek medical men placed much importance on dreams; not so much as a means of foretelling the future, but as an indication of the functional state of the human body. In the Hippocratic Corpus we find a thesis on "Dreams", in which a meaning is given to the various things and situations of which one may dream. The author states that those dreams that merely consist of a transference to the night of a person's daytime actions and thoughts, which continue to happen in normal fashion just as they were done during the day, are good for

they indicate a healthy state. On the contrary if the dreams are of a character contrary to day-time activity that is involving conflict or victory over them, then they constitute a sign of bodily disturbance in proportion to the seriousness of the conflict dreamt about. As a treatment the author prescribed a strong emetic for according to him the dream was due to an excretion resulting from some body superfluity. If a dreamer dreamt of escaping in fright from anything, this meant failure of the circulation as a result of dehydration. As a treatment for this cooling and moistening of the body was counseled. Again, if in a dream it seemed to rain with gentle rain from clear skies and without any violent downpour or heavy storm, it was good for it indicated that the breath drawn from the air was proportioned and pure. If the reverse happened, i.e. violent rain, stream and tempest, and the rain is not clear, it indicated the onset of a disease caused by the respired air.

The art of physiognomy although not, strictly speaking concerned with medicine, was in that time taught as part of the medical education. They believed that the development of everybody's character was influenced by the twelve signs of the Zodiac, which was in turn reflected in the physical features of the individual. Thus in Aristotle's *Physiognomonica*, the author notes that when a man has a large forehead he is slow to move; straight eyebrows are a sign of softness of disposition, and such as curve towards the nose are of a harsh disposition; such as curve towards the temples are a sign of humour and dissimulation, while those eyebrows that are drawn in towards one another are indicative of a jealous disposition. Of the eyes, he says that when the commissures are long, they are a sign of bad disposition and

if the side towards the nostril be fleshy and comb-like they are a sign of dishonesty, while he who hath a wondering eye, and which is rolling up and down, is for the most part a vain, deceitful, lustful, treacherous or high-minded man, an admirer of the fair sex and one easy to be persuaded to virtue or vice.

From this swift and cursive analyses of Greek medical thinking, one may note that although medical knowledge did advance in their times, most of it was speculative and not corroborated by any experiments. Indeed the experiments and dissections were all, exclud-

ing those of Aristotle, very badly done and impossible conclusions were drawn from them, as in the case of the author of "On The Head", who states that from experiments he had come to the conclusion, very extraordinary to our modern ideas that some of the fluid one drinks passes to the lungs. To my idea the most important think the Greeks did in the medical field was to remove medicine from the bigoted atmosphere of the religious functions and to elevate it to the state of a science from where it could advance with relatively steady steps, to our present position

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