

AN EXAMINATION
OF THE ORIGINS OF MEDICINE.

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In the fifth century B. C., Hippocrates of Cos definitely constituted medicine as an art, and fixed the starting point of the history of modern medicine.

The questions of the origin and the extent of pre-Hippocratic learning are interesting, but difficult to determine.

Egyptian Medicine.

Modern Egyptologists have lately called attention to the similarity between a few ancient Egyptian aphorisms, descriptions of disease, and prescriptions, and those in the Hippocratic works.

Professor Alexander Macalister of Cambridge, who has rendered the Papyrus Ebers into English but has as yet only published an abstract of a paper thereon, (Anatomical and Medical Knowledge of Ancient Egypt (abstract), Royal Institution of Great Britain, 5th. March 1886), referring to the post Hippocratic Alexandrian school says (p.2.),-

" But this Alexandrian School, although upon Egyptian soil, was essentially Greek in spirit; even Herophilus had learned some of his anatomy from Praxagoras of Cos, although as the anatomy of the earlier Greek school was originally derived from Egypt, it was but returning to the mother country the traditions of culture derived therefrom. It was in Egypt Democritus of Abdera studied and so was fitted to teach anatomy to Hippocrates, the father of medicine. The three pithy and graphic letters on anatomy which are extant, which it is supposed Democritus sent to Hippocrates, may well have been the result of his Egyptian training. At a later period, it was at Alexandria that Galen pursued his study of anatomy under Heraclianus, and the anatomical school of Alexandria survived until the Mohammedan invasion of Amru in A. D. 640. That much even of the earlier Greek medicine, anatomy, and pathology was derived from Egypt, we learn, both directly and indirectly. Most of the vegetable drugs in use in Greece were natives of Egypt; and Galen, speaking of one prescription called Epigonos, tells us that it was obtained from the adytum of the temple of Ptah, at Memphis. He quotes it, and other Egyptian prescriptions from the book Narthex, written by Hera of Kappadokia."

Again, referring to the Papyrus Ebers, he says (p. 4.),-

" The work is really a series of treatises on different branches of medicine, and from its introductory paragraph seems an embodiment of Heliopolitan medical lore, probably dating from about 1550 B. C.

and on (p. 6.)-

" The atomical description is followed by a series of aphorisms regarding the pathology of vascular disease, arranged in separate sentences; protasis and apodosis beginning respectively with Ar and Pu, reminding us of the *IV KE* of Hippocrates; indeed there is such a Hippocratic aspect about these that one cannot resist the conviction that we have reached here the source of much of the Hippocratic learning. It is possible that the earlier phrase may be interrogative and the latter an answer; but it is more likely that the protasis is conditional rather than interrogative. They relate to such conditions as syncope, cardiac disturbance from abdominal distension, enlargement of the heart, pericardiac adhesion and effusion, dilatation and enlargement of the heart etc. There are twenty two such queries, and some of them point to careful pathological observation; thus there is an allusion to valvular stenosis in one, which says, " If the orifice of the heart be turned back, then constricted is the mouth of the heart". "

Dr. Finlayson of Glasgow, (Ancient Egyptian Medicine: A Bibliographical Demonstration etc., James Finlayson M. D. Glasgow 1893.) quotes Professor Macalister on the Papyrus Ebers and later in discussing the Papyrus Brugsch or Berlin Medical Papyrus of the 14th. century B. C. says, (p. 44.)-

" Source of Hippocratic and other prescriptions. The two pages on the back of the Papyrus contain directions for ascertaining pregnancy, fertility, or sterility, and conclude with prescriptions for deafness and pains in the ear. With regard to the former, Mr. Renouf has given an interesting reference to a passage in one of the Hippocratic books "On Sterility", and he suggested that much of the learning of the Hippocratic school may have come from Egypt. The treatise "On Sterility" is not regarded as a genuine Hippocratic work, but its date goes back, according to Dr. Adams, at least to the time of Aristotle".

Dr. Finlayson then gives M. Chabas' rendering from the Papyrus Brugsch into French and M. Littre's rendering of the passage from Hippocrates *περὶ ζώωνων*, Tome 3. p. 415., referred to by Mr. Renouf, explaining a difference in terms through different texts having been used. The following are the English renderings of the prescriptions - M. Chabas'; The herb Bull Batatu, pounded in a closed vessel with the milk of a woman who has just borne a male child. We make the woman eat this. If she vomits, she will bear a child, if, on the contrary she has horborygnus, she will not bear. M. Littre : If you wish to know if a woman will conceive, give her to swallow in the morning, while fasting, some butter and some milk of a woman suckling a male child. If the woman has eructations she will conceive; if not, then she will not.

Dr. Finlayson further gives at (p. 47.), from Brugsch, a " clinical sketch of Ouchet, Uh'tu or Uha (which last is considered by Joachim to be the chronic constipation and meteorismus (flatulence) of the lower abdomen so common in Chlorosis Aegyptiaca) remarking that the vivid descriptive touches remind one of some of the Hippocratic sketches of disease.-" His belly is heavy, the mouth of his heart (os ventriculi) is sick; his heart (stomach) is burning; his clothes are heavy upon him, many clothes do not make him warm; he is thirsty at night; his taste is perverted, as of one who has eaten sycamore figs; his flesh feels deadened, as one who finds himself ill; if he goes to stool his belly refuses to relieve itself; pronounce over him ----- there is a nidus of inflammation in his belly; his taste is diseased ----- if he gets up he is as one who is being hindered from walking."

Greek Medicine.

The extent of what may be characterised as autochthonous Greek Medicine is shown in literary reflex in the Homeric Poems and in the Greek poets and historians who refer to the period between Homer and Hippocrates. The period covered is from the siege of Troy in the 12th. century B. C. to the 5th. century B. C. when Hippocrates flourished. Two hundred years elapse between the siege of Troy and its treatment by Homer in the 10th. century B. C. and five hundred years between Homer and Hippocrates. Ch. Daremberg (La Médecine dans Homère - Paris 1865.) who has examined the available writings with extreme minuteness and care, commenting, (p. 78 et seq.) on operations and dressings of wounds in Homeric Surgery, says that the treatment was very simple and was practised sometimes on the battlefield and sometimes in the tent. It was confined to extracting the arrow or lance when the head remained in the wound, expressing or cleansing away the blood, applying proper medicaments to allay pain, then applying a containing bandage. The medicaments were in a powdered condition to arrest the flowing of blood. There were also magic drinks (~~nepenthes~~) for calmative purposes. There was no mention of particular instruments nor of any operation whatever.

The earliest references to the schools of Greece and the Greek Colonies in the Mediterranean basin relate to about a hundred years before Hippocrates - the 6th. century B. C.- and show that the fame of the schools as places of instruction depended upon the personal merit of some physician or physicians. Ch. Daremberg (État de la Médecine entre Homère et Hippocrate : Paris 1869.) points out that the word school is here used in the sense of " a body of doctrines professed by masters, accepted by disciples, and spread abroad with the name of these masters and of these disciples." Thus the Greek colony of Croton in lower Italy was famous through

the work and teaching of Democedes, and the physicians of Croton were reckoned in the first rank in all Greece in the 6th. century B. C. The second place in this century is given by Herodotus to Cyrene in Africa but to it no special name is attached. On the authority of Galen mention is made of Rhodes as a school famous in Greece before Hippocratic times, and Ptolemy Philadelphus is stated to have brought manuscripts therefrom about the commencement of the 3rd. century B. C. to help in the formation of the Alexandrian library. The great schools in Greece in Hippocratic times were at Cnidos and Cos, when they arose and by whose reputation they were made famous is not known. That the methods and practices of the two schools differed widely can be made out from criticism of Cnidian teaching in Hippocratic works. The Cnidians are blamed for depending overmuch upon subjective complaints and disregarding objective investigation, but, as information regarding their practice and writings is obtained through Coan and other opponents only, any judgement on their merits or demerits is vitiated. The Coan school having Hippocrates and the Hippocratic writings to commend it to us has been more favoured, but if it is true that the Cnidians "were good observers and skilful surgeons, showed an interest in scientific questions and liked treatment to be as simple as possible" (Puschmann, History of Medical Education - Translat. Hare (p. 48.) London 1891.) they cannot be accused of subordinating objective to subjective investigation.

The sum of the knowledge of the school of Cos must have been great to afford facts and observations for the Hippocratic writings, and if the theory of the autochthonous origin of Greek medicine is held, there must have been a multiform developement from Homeric medicine in five hundred years.

Pre-Hippocratic writings.

The treatises comprised in most of the collections of Hippocratic writings under the names of First Book of Prorrhethics and Coan Prognostics are now generally admitted to be pre-Hippocratic and are believed to be the sources whence the Prognostics were derived by Hippocrates. Dr. Adams in his translation of the genuine works of Hippocrates for the Sydenham Society, 2 vols., London 1849., in the preliminary discourse on the First Book of Prorrhethics and Coan Prognostics p. 64. vol. 1., says:-

"Of late years the opinion has gained pretty general assent that these two treatises are more ancient than the days of Hippocrates; that, in fact, they constitute the materials out of which he composed the "Prognostics", and are the results of the observations made by the priest - physicians in the Asclepion, or Temple of Health, at Cos. This idea is followed out with great ability by Dr. Ermerins, in his "Specimen Historico - Medicum Inaugurale de Hippocratis doctrina a Prognostice oriunda", where, by a most ingenious and convincing process of comparison he appears clearly to make out that the

A copy of Dr. Ermerins dissertation is in the library of the Faculty of Physicians and Surgeons of Glasgow.

"Coacae Praenotiones" are formed from the first book of the "Prorrhetica", and the "Prognostics" from the "Coacae Praenotiones". These positions, I repeat, he seems to me to have established most satisfactorily, and I cannot hesitate to declare it as my opinion that Dr. Ermerins has thereby thrown great light on this department of the Hippocratic literature. M. Littre has justly appreciated the labours of Dr. Ermerins, and adopted his views without reserve (vol. 1., p. 351)."

The conclusions of Dr. Ermerins, quoted and translated by Dr. Adams, which bear upon the question of the pre - Hippocratic origin of the two treatises and the formation of the Prognostics from them are given at p.p. 226, 228, 229. as follows :-

1. "By a most fortunate occurrence certain monuments of the medical art, as cultivated by the Asclepiadae, are preserved to us in the first "Prorrhetics," and the "Praenotiones Coacae," which books appear to be fragments and excerpts from the histories of diseases and cures which were formerly found on the votive tablets of the Coan temple.

2. This sacerdotal medicine was at first a certain medical divination, which, as it was the offspring of pure observation, so the system of prognostics of the Coans was altogether aloof from the theories and systems of the philosophers, and is therefore to be reckoned most worthy of our attention, both from the great love of observation which we admire in it, and from the exquisite and beautiful sense of the simple truth which it evinces.

3. We must keep in view the origin of these presages from individual observations gradually collected, in order that we may have a knowledge of this system of prognostic semeiology. Hence we comprehend how we meet with so many doubtful propositions, and so many uncertain and vague remarks, and that imperfect etiology which confounded causes with their effects, and again, the latter with the former.

4. The readers must particularly keep before their eyes this origin, and the antiquity of those writings, if they would pass a correct judgment on the merits of the Asclepiadae towards the art of medicine. Whatever in their works we have the pleasure of possessing, all attest the infancy of the art; many things are imperfect, and not unfrequently do we see them, while in the pursuit of truth, groping, as it were, and proceeding with uncertain steps, like men wandering about in darkness; but yet the method which they applied, and to which they would seem to have betaken themselves of their own accord, was so excellent, that nothing could surpass it. It was the same method which, Hippocrates himself always adopted, and which, in fine, Lord Bacon, many ages afterwards, commended as the only instrument by which truth in medicine can be found out.

11. Although it cannot be made out for certain that everything which is preserved in these writings existed before Hippocrates, there can be no doubt that many of them are more ancient than he. And although we may attribute some things rather to Hippocrates himself, it is nevertheless certain that the method of deducing the art from observation and comparison had existed before him. Some may, perhaps, object that these books are to be attributed to the youth of Hippocrates, and that the others, more elaborate and perfect, had proceeded from the same person in his old age; but this supposition we may refute by a single argument, namely, that it would be absurd to ascribe so many observations about so many diseases to one man.

12. From the whole Coan system of cultivating medicine, the best hopes might justly have been expected; and from what follows it will be seen that the result did not disappoint this expectation."

In comparing the "Prognostics" and the "Coacae Praenotiones" Dr. Ermerins is further quoted.

1. " We have compared together two monuments of antiquity embracing entirely the same doctrine, so that we may hold it as put out of all doubt that they must have derived their origin from the same school, only the one yields to the other in antiquity, as its more expanded mode of expression shows.

2. The more recent work is attributed to Hippocrates by all the critics and interpreters; the most ancient authors have made mention of it, and all the characteristic marks by which the genuine works of Hippocrates are distinguished from the spurious, without doubt, are found in it; for whether you look to the brevity and gravity of the language, or the paucity of the reasonings, the correctness of the observations, or the dialect in which they are expressed, or, in fine, its agreement with the whole Hippocratic doctrine, - all these attest that " the divine old man" is the author of this work.

3. From a comparison of the "Coacae Praenotiones" with the "Prognostics," it is as clear as the light of day that Hippocrates composed this work from them, in such a manner that he circumscribed many of the symptoms, limited the enunciations, and amplified them all by his own experience in the medical Art. Hence the Prognostics may not inaptly be called the Commentary of Hippocrates on the "Coacae Praenotiones".

4. With regard to the exquisite and artificial order, in which we see many things proposed in this book, we agree entirely with Sprengel, who thinks that they have proceeded from a more recent describer. This is confirmed by our comparison of both works.

5. This work exhibits the fundamental principles and originals of the Hippocratic doctrine, and although we hardly know anything as to the manner in which Hippocrates composed his writings, and of the form which he gave them, it does not seem at all out of the way to hold this book to be the oldest of all the works which "the Father of Medicine" has left to us."

Hippocratic Works.

There has been much controversy in both ancient and modern times with regard to the genuineness of all the works attributed to Hippocrates. Dr. Adams after an exhaustive consideration of all the treatises in the Hippocratic Collections comes to the following conclusions at the end of his preliminary discourse. vol.1. p. 129.

1. " That all the authorities, ancient and modern, who have investigated the question regarding the genuineness of the works which have come down to us under the name of Hippocrates, are agreed that a considerable portion of them are not the production of the author himself.

2. That it is almost universally admitted that the following treatises are genuine, viz.:

The Prognostics.

On Airs, etc.

On Regimen in Acute Diseases.

Seven of the Books of Aphorisms.

Epidemics I and III.

On the Articulations.

On Fractures.

On the Instruments of Reduction.

The Oath.

On Injuries of the Head. (omitted).

3. That the following treatises may be pretty confidently acknowledged as genuine, although the evidence in their favour is not so strong as it is with regard to the preceding list :-

On Ancient Medicine.

On the Surgery.

The Law.

On Ulcers.

On Fistulae.

On Hemorrhoids.

On the Sacred Disease.

4. That as it certainly appears that the Book of Prognostics is composed, in a great measure, from the contents of the First "Prorrhethics" and the "Coacae Praenotiones," there can be little or no doubt that these two treatises are more ancient than the time of Hippocrates.

5. That although the exact time at which the Collection as it now stands, was made out has never been determined in a very satisfactory manner, an examination of the contents of the different treatises leads to the conclusion that most of them represent pretty faithfully

the opinions held by the family of Hippocrates and his immediate successors in the Coan school of medicine.

6. That a few of them, and more especially the two important works "On Internal Affections" and "On Diseases", would appear to bear distinct traces of having emanated from the contemporary school of Cnidos.

7. That although the Epistles and certain public documents usually published at the end of the Collection may justly be suspected of being spurious, there is undoubted evidence that they are of very ancient date, and were composed, most probably, within less than a hundred years after the death of Hippocrates, so that there is every reason for believing that they relate to real events in the life of our author, and not to fictitious as some have supposed."

The Physical Philosophies of the ancient Greeks.

The medical theories in the Hippocratic treatises are naturally founded on the philosophies of the time, and Dr. Adams gives the following as the result of his inquiries into the physical philosophies of the ancients, vol.1. p. 152.:-

1. " That many of the medical theories which occur in the Hippocratic treatises are founded on the physical philosophy of the ancients, and more particularly on their doctrines with regard to the elements of things.

2. That all the great sects of the ancient philosophers held that the four elements, namely, Fire, air, earth, and water, are transmutable into one another, being all of a homogeneous nature, and based upon one common substratum, namely, the primary matter.

3. That, by reasoning from observation and analogy, the ancient philosophers arrived at the conclusion that this primary matter is a substance devoid of all qualities and forms, but susceptible of all forms and qualities.

4. That although certain of the philosophers, the contemporaries and predecessors of Hippocrates, appear to hold that some one of the elements, such as fire or water, was the original of all things, even these had an idea, although not expressed by them in a definite manner, of a first matter, which serves as a basis to all the elements."

The Hippocratic knowledge of anatomy and of Surgical injuries and diseases are indicated in the following treatises :-

On Fractures.

On the Articulations.

On the Instruments of Reduction.

On the Surgery.

On Injuries of the Head.

On Ulcers.

On Fistulae.

On Hemorrhoids.

The treatise "On Fractures" has some sections on dislocations, and that "On the Articulations" some on fractures, which would suggest that the two treatises were originally one, or, that association of ideas led to descriptions of dislocations when fractures near joints were described, and to descriptions of fractures in the ends of bones when dislocations were treated of.

Sections 19 - 23 of the treatise On Fractures, (Dr. Adams, vol. 11. p. 529), though lengthy for quotation give a better idea of the Hippocratic style and knowledge than any description.

" When the thigh-bone is broken, particular pains should be taken with regard to the extension that it may not be insufficient, for when excessive, no great harm results from it. For, if one should bandage a limb while the extremities of the bone are separated to a distance from one another by the force of the extension, the bandaging will not keep them separate, and so the bones will come together again as soon as the persons stretching it let go their hold; for the fleshy parts (muscles?) being thick and strong, are more powerful than the bandaging, instead of being less so. In the case then which we are now treating of, nothing should be omitted in order that the parts may be properly distended and put in a straight line; for it is a great disgrace and an injury to exhibit a shortened thigh. For the arm, when shortened might be concealed, and the mistake would not be great; but a shortened thigh-bone would exhibit the man maimed. For when the sound limb is placed beside it, being longer than the other, it exposes the mistake, and therefore it would be to the advantage of a person who would be improperly treated that both his legs should be broken, rather than either of them; for in this case the one would be of the same length as the other. When, then, proper extension has been made, you must adjust the parts with the palms of the hands, and bandage the limb in the manner formerly described, placing the heads of the bandages as was directed, and making the turns upwards. And the patient should return the same answers to the same questions as formerly, should be pained and recover in like manner, and should have the bandaging renewed in the same way; and the application of the splints should be the same. The thigh-bone is consolidated in fifty days.

20 Put this also should be known, that the thigh-bone is curved rather to the outside than to the inside, and rather forwards than backwards; when not properly treated, then, the distortions are in these directions; and the bone is least covered with flesh at the same parts, so that the distortion cannot be concealed. If, therefore, you suspect anything of this kind, you should have recourse to the mechanical contrivances recommended in distortion of the arm. And a few turns of the bandage should be brought round by the hip and the loins, so that

the groin and the articulation near the perineum may be included in the bandage; and moreover, it is expedient that the extremities of the splints should not do mischief by being placed on parts not covered with the bandages. The splints, in fact, should be carefully kept off the naked parts at both ends; and the arrangement of them should be so managed, as that they may not be placed on the natural protuberances of the bone at the knee-joint, nor on the tendon which is situated there.

21. The swellings which arise in the ham, at the foot, or in any other part from the pressure, should be well wrapped in unscoured and carded wool, washed with wine and oil, and anointed with cerate, before bandaging; and if the splints give pain they should be slackened. You may sooner reduce the swellings, by laying aside the splints, and applying plenty of bandages to them, beginning from below and rolling upwards; for thus the swellings will be most speedily reduced, and the humours be propelled to the parts above the former bandages. But this form of bandaging must not be used unless there be danger of vesications or blackening in the swelling, and nothing of the kind occurs unless the fracture be bound too tight, or unless the limb be allowed to hang, or it be rubbed with the hand, or some other thing of an irritant nature be applied to the skin.

22. More injury than good results from placing below the thigh a canal which does not pass farther down than the ham, for it neither prevents the body nor the leg from being moved without the thigh. And it creates uneasiness by being brought down to the ham, and has a tendency to produce what of all things should be avoided, namely, flexion at the knee, for this completely disturbs the bandages; and when the thigh and leg are bandaged, if one bend the limb at the knee, the muscles necessarily assume another shape, and the broken bones are also necessarily moved. Every endeavour then should be made to keep the ham extended. But it appears to me, that a canal which embraces the limb from the nates to the foot is of use. And moreover, a shawl should be put loosely round at the ham, along with the canal, as children are swathed in bed; and then, if the thigh-bone gets displaced either upwards or to the side, it can be more easily kept in position by this means along with the canal. The canal then should be made so as to extend all along the limb or not used at all.

23. The extremity of the heel should be particularly attended to, so that it may be properly laid, both in fractures of the leg and of the thigh. For if the foot be placed in a dependent position, while the rest of the body is supported, the limb must present a curved appearance at the forepart of the leg; and if the heel be placed higher than is proper, and if the rest of the leg be rather too low, the bone at the forepart of the leg

must present a hollow, more especially if the heel of the patient be naturally large. But all the bones get consolidated more slowly, if not laid properly, and if not kept steady in the same position, and in this case the callus is more feeble."

The treatises "On the Instruments of Reduction" (Mochlicus), and "On the Surgery" (Iatrium) are compendia from those "On Fractures" and "On the Articulations". In section one of "Mochlicus" (Adams, vol.11. p. 660.) a condensed anatomical description chiefly of bones is given as follows:-

1. " With regard to the construction of bones, the bones and joints of the fingers are simple, the bones of the hand and foot are numerous, and articulated in various ways; the uppermost are the largest; the heel consists of one bone which is seen to project outwards, and the back tendons are attached to it. The leg consists of two bones, united together above and below, but slightly separated in the middle; the external bone (fibula), where it comes into proximity with the little toe, is but slightly smaller than the other, more so where they are separated, and at the knee, the outer hamstring arises from it; these bones have a common epiphysis below, with which the foot is moved, and another epiphysis above, in which is moved the articular extremity of the femur, which is simple and light in proportion to its length, in the form of a condyle, and having the patella (connected with it?) the femur itself bends outwards and forwards; its head is a round epiphysis which gives origin to the ligaments inserted in the acetabulum of the hip-joint. This bone is articulated somewhat obliquely, but less so than the humerus. The ischium is united to the great vertebra contiguous to the os sacrum, to the great vertebra, is curved backwards; in this quarter are situated the bladder, the organs of generation, and the inclined portion of the rectum; from this to the diaphragm it proceeds in a straight line inclining forwards, and the psoae are situated there; from this point, to the great vertebra above the tops of the shoulders, it rises in a line that is curved backwards, and the curvature appears greater than it is in reality, for the posterior processes of the spine are there highest; the articulation of the neck inclines forwards. The vertebrae on the inside are regularly placed upon one another, but behind they are connected by a cartilaginous ligament; they are articulated in the form of synarthrosis at the back part of the spinal marrow; behind they have a sharp process having a cartilaginous epiphysis, whence proceeds the roots of nerves running downwards, as also muscles extending from the neck to the loins, and filling the space between the ribs and the spine, The ribs are connected to all the intervertebral spaces on the inside, from the neck to the lumbar region, by a small ligament, and before to the sternum, their extremities being spongy and soft; their

*A by a cartilaginous
ligament. The
Spine, from the
os sacrum*

form is the most arched in man of all animals; for in this part, man is, of all animals, the narrowest in proportion to his bulk. The ribs are united to each vertebra by a small ligament at the place from which the short and broad lateral processes (transverse processes) arise. The sternum is one continuous bone, having lateral pits for the insertion of the ribs; it is of a spongy and cartilaginous structure. The clavicles are rounded in front, having some slight movements at the sternum, but more free at the acromion. The acromion, in man, arises from the scapulae differently from most other animals. The scapula is cartilaginous towards the spine, and spongy elsewhere, having an irregular figure externally; its neck and articular cavity cartilaginous; it does not interfere with the movements of the ribs, and is free of all connexion with the other bones, except the humerus. The head of the humerus is articulated with its (glenoid) cavity, by means of a small ligament, and it consists of a rounded epiphysis composed of spongy cartilage, the humerus itself is bent outwards and forwards, and it is articulated with its (glenoid) cavity by its side, and not in a straight line. At the elbow it is broad, and has condyles and cavities, and is of a solid consistence; behind it is a cavity in which the coronoid process (olecranon) of the ulna is lodged, when the arm is extended; here, too, is inserted the benumbing nerve, which arises from between the two bones of the fore-arm at their junction, and terminates there.

Sections 1 - 6 "On the Surgery" (Adams, vol. 11 p. 474.) are interesting as showing the attention paid to the detail of operations and the operating room and its arrangements.

1. " It is the business of the physician to know, in the first place, things similar and things dissimilar; those connected with things most important, most easily known, and in anywise known; which are to be seen, touched, and heard; which are to be perceived in the sight, and the touch, and the hearing, and the nose, and the tongue, and the understanding; which are to be known by all the means we know other things.

2. The things relating to Surgery, are - the patient; the operator; the assistants; the instruments; the light, where and how; how many things, and how; where the body, and the instruments; the time; the manner; the place.

3. The operator is either sitting or standing, conveniently for himself, for the person operated upon, for the light. There are two kinds of light, the common and artificial; the common is not at our disposal, the artificial is at our disposal. There are two modes of using each, either to the light, or from the light (to the side). There is little use of that which is from (or oblique to the light), and the degree of it is obvious. As to opposite the light, we must turn the part to be operated upon to that which is most

brilliant of present and convenient lights, unless those parts which should be concealed, and which it is a shame to look upon; thus the part that is operated upon should be opposite the light, and the operator opposite the part operated upon, except in so far as he does not stand in his own light; for in this case the operator will indeed see, but the thing operated upon will not be seen. With regard to himself: when sitting, his feet should be raised to a direct line with his knees, and nearly in contact with one another; the knees a little higher than the groins, and at some distance from one another, for the elbows to rest upon. The robe, in a neat and orderly manner, is to be thrown over the elbows and shoulders equally and proportionally. With regard to the part operated upon; we have to consider how far distant, and how near, above, below, on this side, on that side, or in the middle. The measure as to distance and proximity is, that the elbows do not press the knees before, nor the sides behind; that the hands be not raised higher than the breasts, nor lower than so as that when the breast reposes on the knees he may have the hands at right angles with the arm: thus it is as regards the medium; but as concerns this side or that, the operator must not be beyond his seat, but in proportion as he may require turning he must shift the body, or part of the body, that is operated upon. When standing, he must make his inspection, resting firmly and equally on both feet; but he must operate while supporting himself upon either leg, and not the one on the same side with the hand which he makes use of; the knee being raised to the height of the groins as while sitting; and the other measures in like manner. The person operated upon should accommodate the operator with regard to the other parts of his body, either standing, sitting, or lying; so as that he may continue to preserve his figure, avoid sinking down, shrinking from, turning away; and may maintain the figure and position of the part operated upon, during the act of presentation, during the operation, and in the subsequent position.

4. The nails should be neither longer nor shorter than the points of the fingers; and the surgeon should practise with the extremities of the fingers, the index-finger being usually turned to the thumb; when using the entire hand, it should be prone; when both hands, they should be opposed to one another. It greatly promotes a dexterous use of the fingers when the space between them is large, and when the thumb is opposed to the index. But it is clearly a disease when the thumb is impaired from birth, or when, from a habit contracted during the time of nursing, it is impeded in its motions by the fingers. One should practise all sorts of work with either of them, and with both together (for they are

both alike), endeavouring to do them well, elegantly, quickly, without trouble, neatly, and promptly.

5. The instruments, and when and how they should be prepared, will be treated of afterwards; so that they may not impede the work, and that there may be no difficulty in taking hold of them, with the part of the body which operates. But if another gives them, he must be ready a little beforehand, and do as you direct.

6. Those about the patient must present the part to be operated upon as may seem proper, and they must hold the rest of the body steady, in silence, and listening to the commands of the operator."

The treatises "On Injuries of the Head", "On Ulcers", "On Fistulae", and "On Hemorrhoids", are chiefly concerned with treatment of Surgical injury and diseases.

In that "On Injuries of the Head" the injuries are classed, instructions for examination are given, and treatment of a desiccative nature is advocated with definite views for and against trepanning in the various injuries. In that "On Ulcers" the treatment though varied is chiefly of a desiccative kind. Treatment by setons, ligatures, and cutting is advised in the treatise "On Fistulae", and in it are included sections on Strangury and Procidencia Ani.

The cautery and excision are advocated in the treatise "On Hemorrhoids", and Condylomata are included, to be removed by avulsion, shelling out, or the cautery.

The more purely medical knowledge of Hippocratic times is to be found in the following treatises :-

On Airs, Waters, and Places.

Epidemics I and III.

The Prognostics.

On Regimen in Acute Diseases.

On the Sacred Disease.

Seven of the Books of Aphorisms.

The treatise on Airs, Waters, and Places deals with the influence of surroundings on patients and their diseases. Sections 1 and 2 contain the general statement on the subject and give the points and extent of view of the time. (Adams, vol.1 p. 190.):-

1. "Whoever wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effects each of them produces (for they are not at all alike, but differ much from themselves in regard to their changes). Then the winds, the hot and the cold, especially such as are common to all countries, and then such as are peculiar to each locality. We must also consider the qualities of the waters, for as they differ from one another in taste and weight, so also do they differ much in their qualities. In the same manner, when one comes into a city to which he is a stranger, he ought to consider its situation, how it lies as to the winds and the rising of

the sun; for its influence is not the same whether it lies to the north or the south, to the rising or to the setting sun. These things one ought to consider most attentively, and concerning the waters which the inhabitants use, whether they be marshy and soft, or hard, and running from elevated and rocky situations, and then if saltish and unfit for cooking; and the ground, whether it be naked and deficient in water, or wooded and well watered, and whether it lies in a hollow, confined situation, or is elevated and cold; and the mode in which the inhabitants live, and what are their pursuits, whether they are fond of drinking and eating to excess, and given to indolence, or are fond of exercise and labour, and not given to excess in eating and drinking.

2. From these things we must proceed to investigate everything else. For if one knows all these things well, or at least the greater part of them, he cannot miss knowing, when he comes into a strange city, either the diseases peculiar to the place, or the particular nature of common diseases, so that he will not be in doubt as to the treatment of the diseases, or commit mistakes, as is likely to be the case provided one had not previously considered these matters. And in particular, as the season and the year advances, he can tell what epidemic diseases will attack the city, either in summer or in winter, and what each individual will be in danger of experiencing from the change of regimen. For knowing the changes of the seasons, the risings and the settings of the stars, how each of them takes place, he will be able to know beforehand what sort of a year is going to ensue. Having made these investigations, and knowing beforehand the seasons, such a one must be acquainted with each particular, and must succeed in the preservation of health, and be by no means unsuccessful in the practice of his art. And if it shall be thought that these things belong rather to meteorology, it will be admitted, on second thoughts, that astronomy contributes not a little, but a very great deal, indeed, to medicine. For with the seasons the digestive organs of men undergo a change.

Exposure to the South, North, East, and West winds of Greece, and the character of the inhabitants and their diseases are treated of in sections 3 - 6.

The various kinds of waters, such as marshy and stagnant, earthy and mineral, rain, snow, and ice, are discussed in sections 7 - 8, and in section 9 there is a digression on calculi.

The seasons, dry and moist, hot and cold, with their influences and the caution to be observed at their changes occupy sections 10 and 11.

Asia and Europe with the character of their inhabitants

and climates are compared and contrasted in the remaining sections, 12 - 24.

Epidemics I and III. The first and third books of the Epidemics are all that are attributed to Hippocrates by the authorities on the Hippocratic writings. Speaking of the seven books of the Epidemics Dr. Adams, vol. I argument, p. 339, says:-

"The ancient physicians commonly used the term Epidemic in the same sense as it is understood now, that is to say, as applying to any disease which attacks a multitude of persons in a locality at any particular period." "But, although this be the strict sense in which the ancient authorities use the term, it must be borne in mind that, as applied to the whole seven books of the "Epidemics", it must be taken in a much wider signification; for there are many things treated of in them to which the term epidemic can by no means be thus applied, such as surgical cases, fragments of anatomical descriptions, philosophical speculations, empirical remedies, general reflections on various topics, and so forth. In fact, the work entitled "The Books of Epidemics" can be viewed in no other light than as an Adversaria, or Memorandum Book, in which is collected a variety of isolated facts and detached observations, to serve as the materials for more elaborate and finished works on professional subjects. Indeed, Galen does not hesitate to give it as his opinion, that some of the most celebrated of our author's productions, such as the "Aphorisms" and "Prognostics", are in a great measure made up from the materials originally laid up in this capacious repertory of observations; and, with regard to the former of these works, there is no person familiarly acquainted with it but must admit the truth of Galen's remark."

In Books I and III a connection between the seasons and the diseases occurring in and after them is given, the phenomena of certain seasons being grouped under the name of "Constitutions", of which the First Constitution, Adams, vol. I. p. 352 will serve as an example.

1. "In Thasus, about the autumnal equinox, and under the Pleiades, the rains were abundant, constant, and soft, with southerly winds; the winter southerly, the northerly winds faint, droughts; on the whole, the winter having the character of spring. The spring was southerly, cool, rains small in quantity. Summer, for the most part, cloudy, no rain, the Etesian winds, rare and small, blew in an irregular manner. The whole constitution of the season being thus inclined to the southerly, and with droughts early in the spring, from the preceding opposite and northerly state, ardent fevers occurred in a few instances, and these very mild, being rarely attended with hemorrhage, and never proving fatal. Swellings appeared about the ears, in many in either side, and in the greatest number on both sides, being unaccompanied by fever so as not to confine the patient to bed; in all

cases they disappear without giving trouble, neither did any of them come to suppuration, as is common in swellings from other causes. They were of a lax, large, diffused character, without inflammation or pain, and they went away without any critical sign. They seized children, adults, and mostly those who were engaged in the exercises of the palestra and gymnasium, but seldom attacked women. Many had dry coughs without expectoration, and accompanied with hoarseness of voice. In some instances earlier, and in others later, inflammations with pain seized sometimes one of the testicles, and sometimes both; some of these cases were accompanied with fever and some not; the greater part of these were attended with much suffering. In other respects they were free of disease, so as not to require medical assistance.

2. Early in the beginning of spring, and through the summer, and towards winter, many of those who had been long gradually declining, took to bed with symptoms of phthisis; in many cases formerly of a doubtful character the disease then became confirmed; in these the constitution inclined to the phthisical. Many, and, in fact, the most of them, died; and of those confined to bed, I do not know if a single individual survived for any considerable time; they died more suddenly than is common in such cases. But other diseases, of a protracted character, and attended with fever, were well supported, and did not prove fatal: of these we will give a description afterwards. Consumption was the most considerable of the diseases which then prevailed, and the only one which proved fatal to many persons. Most of them were affected by these diseases in the following manner: fevers accompanied with rigors, of the continual type, acute, having no complete intermissions, but of the form of the semi-tertians, being milder the one day, and the next having an exacerbation, and increasing in violence; constant sweats, but not diffused over the whole body; extremities very cold, and warmed with difficulty; bowels disordered, with bilious, scanty, unmixed, thin, pungent, and frequent dejections. The urine was thin, colourless, unconcocted, or thick with a deficient sediment, not settling favorably, but casting down a crude and unseasonable sediment. Sputa small, dense, concocted, but brought up rarely and with difficulty and in those who encountered the most violent symptoms there was no concoction at all, but they continued throughout spitting crude matters. Their fauces, in most of them, were painful from first to last, having redness with inflammation; defluxions thin, small, and acrid; they were soon wasted and became worse, having no appetite for any kind of food throughout; no thirst; most persons delirious when near death. So much concerning the phthisical affections.

3. In the course of the summer and autumn many fevers of the continual type, but not violent; they attacked persons who had been long indisposed, but who were otherwise not in an uncomfortable state. In most cases the bowels were disordered in a very moderate degree, and they did not suffer thereby in any manner worth mentioning; the urine was generally well coloured, clear, thin, and after a time becoming concocted near the crisis. They had not much cough, nor was it troublesome; they were not deficient in appetite, for it was necessary to give them food, (on the whole, persons labouring under phthisis were not affected in the usual manner). They were affected with fevers, rigors, and deficient sweats, with varied and irregular paroxysms, in general not intermitting, but having exacerbations in the tertian form. The earliest crises which occurred was about the twentieth day, in most about the fortieth, and in many about the eightieth. But there were cases in which it did not leave them thus at all, but in an irregular manner, and without any crisis; in most of these the fevers after a brief interval, relapsed again; and from these relapses they came to a crisis in the same periods; but in many they were prolonged so that the disease was not gone at the approach of winter. Of all those which are described under this constitution, the phthisical diseases alone were of a fatal character; for in all the others the patients bore up well, and did not die of the other fevers.

In the second constitution the season described is wet, cold, and northerly, and the people are stated to have been healthy during winter, but valetudinary in spring. The diseases noted are Ophthalmies, Rheums, Pains; in summer and autumn Dysenteric affections, Tenesmus, Lientery, Bilious Diarrhoea etc.; during autumn and the commencement of winter, Phthisis and Continual Fevers. In referring to ^{the} dangers and treatment of these ailments a characteristic generalisation is given on page 360.

5 " With regard to the dangers of these cases, one must always attend to the seasonable concoction of all the evacuations, and to the favorable and critical abscesses. The concoctions indicate a speedy crisis and recovery of health; crude and undigested evacuations, and those which are converted into bad abscesses, indicate either want of crisis, or pains, or prolongation of the disease, or death, or relapses; which of these it is to be must be determined from other circumstances. The physician must be able to tell the antecedents, know the present, and foretell the future - must meditate these things, and have two special objects in view with regard to diseases, namely, to do good or to do no harm. The art consists in three things - the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician.

Another generalisation formulating the whole duty of the physician with respect to his judgment of diseases is to be found in sect. 111. p. 367.:-

10. " With regard to diseases, the circumstances from which we form a judgment of them are,- by attending to the general nature of all, and the peculiar nature of each individual,- to the disease, the patient, and the applications,- to the person who applies them, as that makes a difference for better or for worse,- to the whole constitution of the season, and particularly to the state of the heavens, and the nature of each country;- to the patient's habits, regimen, and pursuits;- to his conversation, manners, taciturnity, thoughts, sleep, or absence of sleep, and sometimes his dreams, what and when they occur;- to his picking and scratching;- to his tears;- to the alvine discharges, urine, sputa, and vomitings; and to the changes of diseases from the one into the other;- to the deposits, whether of a deadly or critical character;- to the sweat, coldness, rigor, cough, sneezing, hiccup, respiration, eructation, flatulence whether passed silently or with a noise;- to hemorrhages and hemorrhoids;- from these, and their consequences, we must form our judgment."

There is also a further statement of the physician's duty on page 407.

16. " I look upon it as being a great part of the art to be able to judge properly of that which has been written. For he that knows and makes a proper use of these things, would appear to me not likely to commit any great mistake in the art. He ought to learn accurately the constitution of every one of the seasons, and of the diseases; whatever that is common in each constitution and disease is good, and whatever is bad; whatever disease will be protracted and end in death, and whatever will be protracted and end in recovery; which disease of an acute nature will end in death, and which in recovery. From these it is easy to know the order of the critical days, and prognosticate from them accordingly. And to a person who is skilled in these things, it is easy to know to whom, when, and how aliment ought to be administered."

In these books there are three sets of cases which show the point clinical observation and study of disease had reached in Hippocratic times. Three cases are extracted, one from each set,- Adams, vol.1. p. 370.

" Case 1. - Philiscus, who lived by the Wall, took to bed on the first day of acute fever; he sweated; towards night was uneasy. On the second day all the symptoms were exacerbated; late in the evening had a proper stool from a small clyster, the night quiet. On the third day, early in the morning and until noon, he appeared to be free from fever; towards evening, acute fever, with sweating, thirst, tongue parched; passed black urine;

night uncomfortable, no sleep; he was delirious on all subjects. On the fourth, all the symptoms exacerbated, urine black; night more comfortable, urine of a better colour. On the fifth, about mid-day, had a slight trickling of pure blood from the nose; urine varied in character, having floating in it round bodies, resembling semen, and scattered, but which did not fall to the bottom; a suppository having been applied, some scanty flatulent matters were passed; night uncomfortable, little sleep, talking incoherently; extremities altogether cold, and could not be warmed; urine black; slept a little towards day; loss of speech, cold sweats; extremities livid; about the middle of the sixth day he died. The respiration throughout, like that of a person recollecting himself, was rare, and large, the spleen was swelled up in a round tumour, the sweats cold throughout, the paroxysms on the even days."

p.293. "Case 6.- The daughter of Euryanax, a maid, was taken ill with fever. She was free of thirst throughout, but had no relish for food. Alvine discharges small, urine thin, scanty, not well coloured. In the beginning of the fever, had a pain about the nates. On the sixth day, was free of fever, did not sweat, had a crisis; the complaint about the nates came to a small suppuration, and burst at the crisis; After the crisis, on the seventh day, had a rigor, became slightly heated, sweated. On the eighth day after the rigor, had an inconsiderable rigor; the extremities cold ever after. About the tenth day, after a sweat which came on, she became delirious, and again immediately afterwards was collected; these symptoms were said to have been brought on by eating grapes. After an intermission of the twelfth day, she again talked much incoherently; her bowels disordered with bilious, scanty, unmixed, thin, acrid discharges; she required to get frequently up. She died on the seventh day after the return of the delirium. At the commencement of the disease she had pain in the throat, and it was red throughout; uvula retracted; defluxions abundant, thin, acrid; coughed, but had no concocted sputa; during the whole time loathed all kinds of food, nor had the least desire of anything; had no thirst, nor drank anything worth mentioning; was silent, and never spoke a word; despondency; had no hopes of herself. She had a congenital tendency to phthisis."

p.419."Case 15.- In Thasus, the wife of Dealces, who was lodged upon the Plain, from sorrow was seized with an acute fever, attended with chills. From first to last she wrapped herself up in her bedclothes; still silent, she fumbled, picked, bored, and gathered hairs (from them); tears, and again laughter; no sleep; bowels irritable, but passed nothing; when directed, drank a little; urine thin and scanty; to the touch of the hand the fever was slight; coldness of the extremities. On the ninth,

talked much incoherently, and again became composed and silent. On the fourteenth, breathing rare, large, at intervals; and again hurried respiration. On the sixteenth, looseness of the bowels from a stimulant clyster; afterwards she passed her drink, nor could retain anything, for she was completely insensible; skin parched and tense. On the twentieth, much talk, and again became composed; loss of speech; respiration hurried. On the twenty-first she died. Her respiration throughout was rare and large; she was totally insensible; always wrapped up in her bedclothes; either much talk, or complete silence throughout. Phrenitis."

The Prognostics. In this treatise we have both general and particular evidence of profound and thoughtful clinical study. As formerly stated it is regarded by competent critics as founded by Hippocrates on the "Coan Prognostics" and through it on the "Prorrhethics", its subject matter being systematised, emended, and corrected.

Sections 1 and 2 on the value of prognosis and the methods and points to be observed are given from Adams, vol. 1 p. 234 et seq.

1. "It appears to me a most excellent thing for the physician to cultivate Prognosis; for by foreseeing and foretelling, in the presence of the sick, the present, the past, and the future, and explaining the omissions which patients have been guilty of, he will be the more readily believed to be acquainted with the circumstances of the sick; so that men will have confidence to intrust themselves to such a physician. And he will manage the cure best who has foreseen what is to happen from the present state of matters. For it is impossible to make all the sick well; this, indeed, would have been better than to be able to foretel what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived, perhaps, only one day or a little longer, and before the physician could bring his art to counteract the disease; it therefore becomes necessary to know the nature of such affections, how far they are above the powers of the constitution; and, moreover, if there be anything divine in the diseases, and to learn a foreknowledge of this also. Thus a man will be the more esteemed to be a good physician, for he will be the better able to treat those aright who can be saved, from having long anticipated everything; and by seeing and announcing beforehand those who will live and those who will die, he will thus escape censure.

2. He should observe thus in acute diseases: first, the countenance of the patient, if it be like those of persons in health, and more so, if like itself, for this is the best of all; whereas the most opposite to it is the worst, such as the following: a sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and

their lobes turned out; the skin about the forehead being rough, distended, and parched; the colour of the whole face being green, black, livid, or lead-coloured. If the countenance be such at the commencement of the disease, and if this cannot be accounted for from the other symptoms, inquiry must be made whether the patient has long wanted sleep; whether his bowels have been very loose; and whether he has suffered from want of food; and if any of these causes be confessed to, the danger is to be reckoned so far less; and it becomes obvious, in the course of a day and a night, whether or not the appearance of the countenance proceed from these causes. But if none of these be said to exist, and if the symptoms do not subside in the aforesaid time, it is to be known for certain that death is at hand. And, also, if the disease be in a more advanced stage either on the third or fourth day, and the countenance be such, the same inquiries as formerly directed are to be made, and the other symptoms are to be noted, those in the whole countenance, those on the body, and those in the eyes; for if they shun the light, or weep involuntarily, or squint, or if the one be less than the other, or if the white of them be red, livid, or has black veins in it; if there be a gum upon the eyes, if they are restless, protruding, or are become very hollow; and if the countenance be squalid and dark, or the colour of the whole face be changed - all these are to be reckoned bad and fatal symptoms. The physician should also observe the appearance of the eyes from below the eyelids in sleep; for when a portion of the white appears, owing to the eyelids not being closed together, and when this is not connected with diarrhoea or purgation from medicine, or when the patient does not sleep thus from habit, it is to be reckoned an unfavorable and very deadly symptom; but if the eyelid be contracted, livid, or pale, or also the lip, or nose, along with some of the other symptoms, one may know for certain that death is close at hand. It is a mortal symptom, also, when the lips are relaxed, pendent, cold, and blanched."

The other sections, up to 25 in number, treat of what is to be learned from the following:- *Decubitus*, grinding of teeth in fevers, appearance of ulcers, movements of the hands, respirations, sweats, the state of the hypochondrium, suppurations, dropsies, coldness of extremities, heaviness of body, discolouration and gangrene, sleep, excrement, urine, vomiting, expectoration, empyema, diaphragm and bladder inflammation, fevers, and these plus headaches, ear pains, ulceration of throat, hemorrhages, vomitings, convulsions in children etc., finally prognostics are given from epidemics and the constitution of the seasons. Sections 4 and 5 p.p. 238, 239 are short and give an idea of the observations on two of the subjects just noted.

4. "Respecting the movement of the hands I have these observations to make: When in acute fevers, pneumonia, phrenitis, or headache, the hands are waved before the

face, hunting through empty space, as if gathering bits of straw, picking the nap from the coverlet, or tearing chaff from the wall - all such symptoms are bad and deadly."

5. "Respiration, when frequent, indicates pain or inflammation in the parts above the diaphragm: a large respiration performed at a great interval announces delirium; but a cold respiration at nose and mouth is a very fatal symptom. Free respiration is to be looked upon as contributing much to the safety of the patient in all acute diseases, such as fevers, and those complaints which come to a crisis in forty days."

On Regimen in Acute Diseases.

In this treatise we have the Hippocratic ideas on treatment set forth. The first section is a criticism of the Cnidian school which is blamed for making too many varieties of diseases and having few remedies. Adams, vol.1. p. 282.:-

1. "Those who composed what are called 'The Cnidian Sentences' have described accurately what symptoms the sick experience in every disease, and how certain of them terminate; and in so far a man, even who is not a physician, might describe them correctly, provided he put the proper inquiries to the sick themselves what their complaints are. But those symptoms which the physician ought to know beforehand, without being informed of them by the patient, are, for the most part, omitted, some in one case and some in others, and certain symptoms of vital importance for a conjectural judgment. But when, in addition to the diagnosis, they describe how each complaint should be treated, in these cases I entertain a still greater difference of opinion with them respecting the rules they have laid down; and not only do I not agree with them on this account, but also because the remedies they use are few in number; for, with the exception of acute diseases, the only medicine which they give are drastic purgatives, with whey, and milk at certain times. If, indeed, these remedies had been good and suitable to the complaints in which they are recommended, they would have been still more deserving of recommendation, if, while few in number, they were sufficient; but this is by no means the case. Those, indeed, who have remodelled these 'Sentences' have treated of the remedies applicable in each complaint more in a medical fashion. But neither have the ancients written anything worth mentioning respecting regimen, although this be a great omission. Some of them, indeed, were not ignorant of the many varieties of each complaint, and their manifold divisions, but when they wish to tell clearly the numbers (species) of each disease they do not write correctly; for their species would be almost innumerable if every symptom experienced by the patients were held to constitute a disease, and receive a different name."

The second and third sections give a general statement of the Hippocratic views regarding treatment. p.p.283. 284.:-

2. " For my part, I approve of paying attention to everything relating to the art, and that those things which can be done well or properly should all be done properly; such as can be quickly done should be done quickly; such as can be neatly done should be done neatly; such operations as can be performed without pain should be done with the least possible pain; and that all other things of the like kind should be done better than they could be managed by the attendants. But I would more especially commend the physician who, in acute diseases, by which the bulk of mankind are cut off, conducts the treatment better than others. Acute diseases are those which the ancients named pleurisy, pneumonia, phrenitis, lethargy, causus, and other diseases allied to these, including the continual fevers. For, unless when some general form of pestilential disease is epidemic, and diseases are sporadic and (not) of a similar character, there are more deaths from these diseases than from all the others taken together. The vulgar, indeed, do not recognise the difference between such physicians and their common attendants, and are rather disposed to commend and censure extraordinary remedies. This, then, is a great proof that the common people are most incompetent, of themselves, to form a judgment how such diseases should be treated: since persons who are not physicians pass for physicians owing most especially to these diseases, for it is an easy matter to learn the names of those things which are applicable to persons labouring under such complaints. For, if one names the juice of ptisan, and such and such a wine, and hydromel, the vulgar fancy that he prescribes exactly the same things as the physicians do, both the good and the bad, but in these matters there is a great difference between them."

3. " But it appears to me that those things are more especially deserving of being consigned to writing which are undetermined by physicians, notwithstanding that they are of vital importance, and either do much good or much harm. By undetermined I mean such as these, wherefore certain physicians, during their whole lives, are constantly administering unstrained ptisans, and fancy they thus accomplish the cure properly, whereas others take great pains that the patient should not swallow a particle of the barley (thinking it would do much harm), but strain the juice through a cloth before giving it; others, again, will neither give thick ptisan nor the juice, some until the seventh day of the disease, and some until after the crisis. Physicians are not in the practice of mooted such questions; nor, perhaps, if mooted, would a solution of them be found; although the whole art is thereby exposed to much censure from the vulgar, who fancy that there really is no such science as

medicine, since, in acute diseases, practitioners differ so much among themselves, that those things which one administers as thinking it the best that can be given, another holds to be bad; and, in this respect, they might say that the art of medicine resembles augury, since augurs hold that the same bird (omen) if seen on the left hand is good, but if on the right bad: and in divination by the inspection of entrails you will find similar differences; but certain diviners hold the very opposite of these opinions. I say, then, that this question is a most excellent one, and allied to very many others, some of the most vital importance in the Art, for that it can contribute much of the recovery of the sick, and to the preservation of health in the case of those who are well; and that it promotes the strength of those who use gymnastic exercises, and is useful to whatever one may wish to apply it."

The treatment of pleurisy is given in full in section 7.p.289.

"When pain seizes the side, either at the commencement or at a later stage, it will not be improper to try to dissolve the pain by hot applications. Of hot applications the most powerful is hot water in a bottle, or bladder, or in a brazen vessel, or in an earthen one; but one must first apply something soft to the side, to prevent pain. A soft large sponge, squeezed out of hot water and applied, forms a good application; but it should be covered up above, for thus the heat will remain the longer, and at the same time the vapour will be prevented from being carried up to the patient's breath, unless when this is thought of use, for sometimes it is the case. And further, barley or tares may be infused and boiled in diluted vinegar, stronger than that it could be drunk, and may then be sewed into bladders and applied; and one may use bran in like manner. Salts or toasted millet in woollen bags are excellent for forming a dry fomentation, one ought not to foment for a length of time, for this dries the lungs and promotes suppuration; but if the pain point to the clavicle, or if there be a heaviness in the arm, or about the breast, or above the diaphragm, one should open the inner vein at the elbow, and not hesitate to abstract a large quantity, until it become much redder, or instead of being pure red, it turns livid, for both these states occur. But if the pain be below the diaphragm, and do not point to the clavicle, we must open the belly either with black hellebore or peplium, mixing the black hellebore with carrot or seseli, or cumin, or anise, or any other of the fragrant herbs; and with the peplium the juice of sulphium (assafoetida), for these substances, when mixed up together, are of a similar nature. The black hellebore acts more pleasantly and effectually than the peplium, while, on the other hand, the peplium expels

wind much more effectually than the black hellebore, and both these stop the pain, and many other of the laxatives also stop it, but these two are the most efficacious that I am acquainted with. And the laxatives given in draughts are beneficial, when not very unpalatable owing to bitterness, or any other disagreeable taste, or from quantity, colour, or any apprehension. When the patient has drunk the medicine, one ought to give him to swallow but little less of the ptisan than what he had been accustomed to; but it is according to rule not to give any draughts while the medicine is under operation; but when the purging is stopped then he should take a smaller draught than what he had been accustomed to, and afterwards go on increasing it progressively, until the pain cease, provided nothing else contra - indicate. This is my rule, also, if one would use the juice of ptisan, (for I hold that it is better, on the whole, to begin with taking the decoction at once, rather than by first emptying the veins before doing so, or on the third, fourth, fifth, sixth, or seventh day, provided the disease has not previously come to a crisis in the course of this time), and similar preparations to those formerly described are to be made in those cases."

The sections are seventeen in number and in addition to what has been already extracted give instructions for determining the use of ptisan, various wines, water, hydromel, oxymel etc., in acute diseases. The use of baths and affusions and of frictions is also commended, to be governed like the other treatments by the habits of the patient and the nature of the disease, special cautions being given against great changes in diet or usage.

On the Sacred Disease.

This treatise, if the work of Hippocrates, is interesting for its pronouncement in favour of disease arising from natural causes rather than being of sacred or divine origin. It agrees with the opinion expressed by Hippocrates on the impotence of the Scythians in section 22 of the treatise on Airs, Waters and Places, Adams, vol.1. p. 216.:-

22. " And, in addition to these, there are many eunuchs among the Scythians, who perform female work, and speak like women. Such persons are called effeminate. The inhabitants of the country attribute the cause of their impotence to a god, and venerate and worship such persons, every one dreading that the like might befall himself; but to me it appears that such affections are just as much divine as all others are, and that no one disease is either more divine or more human than another, but that all are alike divine, for that each has its own nature, and that no one arises without an natural cause."

The first few lines are as follows:- Adams, vol.11. p. 843.:-

" It is thus with regard to the disease called Sacred: it appears to me to be nowise more divine nor more sacred

than other diseases, but has a natural cause from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like to other diseases. And this notion of its divinity is kept up by their inability to comprehend it, and the simplicity of the mode by which it is cured, for men are freed from it by purifications and incantations. But it is reckoned divine because it is wonderful, instead of one there are many diseases which would be sacred; for, as I will show, there are others no less wonderful and prodigious, which nobody imagines to be sacred. The quotidian, tertian, and quartan fevers, seem to me no less sacred and divine in their origin than this disease, although they are not reckoned so wonderful. And I see men become mad and demented from no manifest cause, and at the same time doing many things out of place; and I have known many persons in sleep groaning and crying out, some in a state of suffocation, some jumping up and fleeing out of doors, and deprived of their reason until they awaken, and afterwards becoming well and rational as before, although they be pale and weak; and this will happen not once but frequently. And there are many and various things of the like kind, which it would be tedious to state particularly."

There ~~are~~ more reasoning and argument, and less simple and direct observation than in Hippocratic treatises which are by all admitted as undoubted.

Aphorisms.

Seven of the books of Aphorisms are given as genuine works of Hippocrates by the later authorities including Adams, but an acknowledged difficulty occurs in that the aphorisms are mixed and repetitive, being derived alike from genuine works and works rejected as spurious, or on the other hand having been used in the formation of both the genuine and spurious treatises. The aphorisms are mostly short pithy sayings belonging to surgery and medicine, and appear as if taken from the treatises on "The Prognostics" "On the Articulations", "On Airs, Waters, and Places" etc. There are many however which appear to have been taken from such rejected works as those "On the Humours", "On Aliment" etc. The aphorisms are valuable as showing that there was no want of clear thinking and definite decision on many subjects which were imperfectly understood in the time of Hippocrates. A few of the aphorisms are subjoined from Adams, vol. 11. p.697 et seq.

Section 1. "1. Life is short, and the Art long; the occasion fleeting; experience fallacious, and judgment difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals cooperate.

2." In disorders of the bowels and vomitings, occurring spontaneously, if the matters purged be such as ought to be purged, they do good, and are well borne; but if not,

the contrary. And so artificial evacuations, if they consist of such matters as should be evacuated, do good, and are well borne; but if not, the contrary. One, then, ought to look to the country, the season, the age, and the diseases in which they are proper or not.

"4. A slender and restricted diet is always dangerous in chronic diseases, and also in acute diseases, where it is not requisite. And again, a diet brought to the extreme point of attenuation is dangerous; and repletion, when in the extreme, is also dangerous."

"8. When the disease is at its height, it will then be necessary to use the most slender diet."

"13. Old persons endure fasting most easily; next, adults; young persons not nearly so well; and most especially infants, and of them such as are of a particularly lively spirit."

"20. When things are at the crisis, or when they have just passed it, neither move the bowels, nor make any innovation in the treatment, either as regards purgatives or any other such stimulants, but let things alone."

"21. Those things which require to be evacuated should be evacuated, wherever they most tend, by the proper outlets."

Section 2. "2. When sleep puts an end to delirium, it is a good symptom.

"5. Spontaneous lassitude indicates disease."

"6. Persons who have a painful affection in any part of the body, and are in a great measure insensible of the pain, are disordered in intellect."

The three Hippocratic writings remaining for consideration deal rather with the profession of medicine than with its subject matter, they are:-

On Ancient Medicine.

The Oath.

The Law.

The work on Ancient Medicine deals in the first two sections with the medical polemic of the day - Hypothesis versus Observation and Experience. Adams, vol.1. p.161 et seq.

1. "Whoever having undertaken to speak or write on Medicine, have first laid down for themselves some hypothesis to their argument, such as hot, or cold, or moist, or dry, or whatever else they choose, (thus reducing their subject within a narrow compass, and supposing only one or two original causes of disease or of death among mankind,) are all clearly mistaken in much that they say; and this is the more reprehensible as relating to an art which all men avail themselves of on the most important occasions, and the good operators and practitioners, some bad and some far otherwise, which, if there had been no such thing as medicine, and if nothing had been investigated or found out in it, would not have been the case, but all would have been equally unskilled and ignorant of it, and everything concerning the sick would have been directed by chance. But now it is not

a in which they hold in special honour. For there are practitioners

so; for, as in all the other arts, those who practise them differ much from one another in dexterity and knowledge, so is it in like manner with Medicine. Wherefore I have not thought that it stood in need of an empty hypothesis, like those subjects which are occult and dubious, in attempting to handle which it is necessary to use some hypothesis; as, for example, with regard to things above us and things below the earth; if any one should treat of these and undertake to declare how they are constituted, the reader or hearer could not find out, whether what is delivered be true or false; for there is nothing which can be referred to in order to discover the truth."

2. "But all these requisites belong of old to Medicine, and an origin and way have been found out, by which many and elegant discoveries have been made, during a length of time, and others will yet be found out, if a person possessed of the proper ability, and knowing those discoveries which have been made, should proceed from them to prosecute his investigations. But whoever, rejecting and despising all these, attempts to pursue another course and form of inquiry, and says he has discovered anything, is deceived himself and deceives others, for the thing is impossible. And for what reason it is impossible, I will now endeavour to explain, by stating and showing what the art really is. From this it will be manifest that discoveries cannot possibly be made in any other way. And most especially, it appears to me, that whoever treats of this art should treat of things which are familiar to the common people. For of nothing else will such a one have to inquire or treat, but of the diseases under which the common people have laboured, which diseases and the causes of their origin and departure, their increase and decline, illiterate persons cannot easily find out themselves, but still it is easy for them to understand these things when discovered and expounded by others. For it is nothing more than that every one is put in mind of what had occurred to himself. But whoever does not reach the capacity of the illiterate vulgar, and fails to make them listen to him, misses his mark. Wherefore, then, there is no necessity for any hypothesis."

The next ten sections trace the origin of medicine from dietetics, and its naming as an art. The objects of the dieter and physician are made out to be the same, differing only in degree. In section nine the necessity of accuracy and avoidance of mistakes is ~~thus~~ put - p. 166.:-

"For one must aim at attaining a certain measure, and yet this measure admits neither weight nor calculation of any kind, by which it may be accurately determined, unless it be the sensation of the body; wherefore it is a task to learn this accurately, so as not to commit small blunders either on the one side or the other, and

in fact I would give great praise to the physician whose mistakes are small, for perfect accuracy is seldom to be seen, since many physicians seem to me to be in the same plight as bad pilots, who, if they commit mistakes while conducting the ship in a calm do not expose themselves, but when a storm and violent hurricane overtake them, they then, from their ignorance and mistakes, are discovered to be what they are, by all men, namely, in losing their ship. And thus bad and commonplace physicians, when they treat men who have no serious illness, in which case one may commit great mistakes without producing any formidable mischief, (and such complaints occur much more frequently to men than dangerous ones): under these circumstances, when they commit mistakes, they do not expose themselves to ordinary men; but when they fall in with a great, a strong and a dangerous disease, then their mistakes and want of skill are made apparent to all. Their punishment is not far off, but is swift in overtaking both the one and the other."

And again in section twelve p. 168.

"It is difficult, seeing that there is no such accuracy in the Art, to hit always upon what is most expedient, and yet many cases occur in medicine which would require this accuracy, as we shall explain. But on that account, I say, we ought not to reject the ancient Art, as if it were not, and had not been properly founded, because it did not attain accuracy in all things, but rather, since it is capable of reaching to the greatest exactitude by reasoning, to receive it and admire its discoveries, made from a state of great ignorance, and as having been well and properly made, and not from chance."

The writer then reverts to the question of hypothesis against observation and experience and combats the proposition that knowledge of man is a pre-requisite to the knowledge of medicine;— p. 174.:-

20. "Certain sophists and physicians say that it is not possible for any one to know medicine who does not know what man is (and how he was made and how constructed), and that whoever would cure men properly, must learn this in the first place. But this saying rather appertains to philosophy, as Empedocles and certain others have described what man in his origin is, and how he first was made and constructed. But I think whatever such has been said or written by sophist or physician concerning nature has less connexion with the art of medicine than with the art of painting. And I think that one cannot know anything certain respecting nature from any other quarter than from medicine; and that this knowledge is to be attained when one comprehends the whole subject of medicine properly, but not until then; and I say that this history shows what man is, by what causes he was made, and other things accurately. Wherefore it appears to me necessary to every physician to be skilled in nature, and

strive to know, if he would wish to perform his duties, what man is in relation to the articles of food and drink, and to his other occupations, and what are the effects of each of them to every one."

21. " During convalescence from disease, and also in protracted diseases, many disorders occur, some spontaneously, and some from certain things accidentally administered. I know that the common herd of physicians like the vulgar, if there happen to have been any innovation made about that day, such as the bath being used, a walk taken, or any unusual food eaten, all which were better done than otherwise, attribute notwithstanding the cause of these disorders, to some of these things, being ignorant of the true cause, but proscribing what may have been very proper. Now this ought not to be so, but one should know the effects of a bath or a walk unseasonably applied; for thus there will never be any mischief from these things nor from any other thing, nor from repletion, nor from such and such an article of food. Whoever does not know what effect these things produce upon a man, cannot know the consequences which result from them, nor how to apply them."

"The Oath" and "The Law" show the medical status and polity of Hippocratic times;- Adams, vol. 11.p.779. The Oath:-

" I swear by Apollo the physician, and Aesculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation - to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practise my Art. I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever house I enter I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connexion with my professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to

be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times. But should I trespass and violate this Oath, may the reverse be my lot."

p. 784. The Law :-

" Medicine is of all the Arts the most noble; but, owing to the ignorance of those who practise it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace, and that does not hurt those who are familiar with it. Such persons are like the figures which are introduced in tragedies, for as they have the shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality. 2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: a natural disposition; instruction; a favourable position for the study; early tuition; love of labour; leisure. First of all, a natural talent is required for, when Nature opposes, everything else is vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labour and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity.

4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in travelling through the cities, be esteemed physicians not only in name but in reality. But inexperience is a bad treasure, and a bad fund to those who possess it, whether in opinion or reality, being devoid of self-reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of powers, and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be

ignorant.

5. Those things which are sacred, are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science."

Conclusions.

1. The theory that much of the early Greek medical knowledge was derived from Ancient Egypt has been rendered more probable of late by examination of the Papyrus Ebers of the 16th. century B. C. and the Papyrus Brugsch or Berlin Medical Papyrus of the 14th. century B. C., in which there are aphorisms, clinical descriptions of disease, and prescriptions, similar to those in the Hippocratic writings.
2. The autochthonous theory of the origin of Greek medicine supposes a multiform development in five hundred years, from the simple field surgery of Homer to the definite constitution of medicine as an art by Hippocrates. The art of Hippocrates comprised a knowledge of man and his natural surroundings, his diseases and their treatment, his outlook under disease, and the recognition of a history of medicine and a body of practitioners with a status and a polity. Such a development may be regarded as quite probable when the high attainments of the Greek mind of that period are recalled, Hippocrates having as contemporaries the great philosophers, poets, and historians, of the age of Pericles. To admit that the acute and well balanced Greek intellect made every use of the pre-existent Egyptian learning does not detract from the claim of Greek medicine to be the offspring of its own soil.
3. Schools of medicine having doctrines, teachers, and students, existed in Greece and its colonies in the 6th. century B. C., at least a hundred years before the time of Hippocrates; and medical treatises such as the First Book of Prorrhethics and the Coan Prognostics are believed to be the result of the observations made by the priest-physicians of the temple of Cos and the source whence Hippocrates derived his Prognostics.
4. The Hippocratic collection like many others of ancient date is made up of genuine and spurious works brought together under the heading of a distinguished name. Both ancient and modern authorities unite in regarding many of the treatises as not the writings of Hippocrates, but, of his predecessors and successors.
5. The Hippocratic collection contains a definite body of medicine and surgery, with theories founded on the physical philosophy of the time.
6. Hippocrates collected and simplified the medical knowledge of his time. He established Medicine as an Art based on observation and experience, and to be

advanced only by observation and experience. In his writings he made use of the records left by his predecessors, commented upon them, and arranged concisely and clearly much that was diffuse and obscure. To his successors he left the recorded results of his own observation and experience, with the precepts he had deduced therefrom, and in so doing gave Medicine the form it retains to the present day.

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