GALEN.

[A BIBLIOGRAPHICAL DEMONSTRATION IN THE LIBRARY OF THE
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(Continued from p. 573.)

GALEN AS A HIPPOCRATIC CRITIC.

As a Hippocratic scholar, critic, and commentator, Galen had enormous advantages. Thoroughly acquainted with the various idioms of Greek, and saturated with the knowledge and traditions of the medical profession, he had likewise a great admiration of the author, and at the same time much practical experience to guide him in his study of the works. Some idea of the extent of Galen's commentaries may be gathered at a glance when I show you these five volumes of Kühn's edition—about one-fourth of the whole—as comprising the commentaries on the Hippocratic writings. I likewise show to you in vol. 19 a vocabulary he compiled for the Hippocratic treatises, and this, along with a similar lexicon by Erotian and Herodotus, was shown to you—in a volume edited by Franzius, Leipzig, 1780—when I gave you a demonstration of the Hippocratic writings.

Galen discusses the genuine or spurious character of the various Hippocratic treatises; he expounds the meaning of the text; he criticises the statements, and he goes into long and elaborate commentaries based on his own ideas and experience. His criticism is of paramount importance; but, from his somewhat egotistical character, he has been accused of being too "Galenic," and not sufficiently Hippocratic.

GALEN AS AN ANATOMIST AND PHYSIOLOGIST.

As an anatomist Galen takes high rank. Two anatomical treatises exist: one *De Anatomica Administrationibus*, in nine books; and the other *De Usu Partium*, in seventeen books. This last is translated in full by Daremberg. Both of these works testify to the minuteness of his anatomical studies. It is in the latter work that the so-called "Hymn" to the Creator occurs (Lib. III, cap. X). The following is the translation as it occurs in Pettigrew's *Biographical Memoirs*, under Galen:

[Galen's Hymn to the Creator.] In my opinion, true religion consists not so much in costly sacrifices and fragrant perfumes offered upon his altars, as in a thorough conviction impressed upon our own minds and an endeavour to produce a similar impression upon the minds of others, of his unerring wisdom, his resistless power and his all-diffusive goodness. For, his having arranged everything in that order and disposition which are best calculated to distribute his favours to all his works, is a manifest proof of his goodness, which calls loudly for our hymns and praises. His having found the means necessary for the establishment and preservation of this beautiful order and disposition, is as incontestable a proof of his wisdom, as his having done whatever he pleased is of his omnipotence. (See also Daremberg's Translation, tome 1, p. 261; and Kühn, vol. 3, p. 237.)

Of Galen's work as an anatomist and physiologist we can gather a good idea from Dr. Kidd's paper already referred to in the first footnote. Much discussion has taken place as to whether Galen practised human dissections or limited himself entirely to the lower animals. It is quite certain that he dissected animals, and a representation of this process is given on the title page of the Latin edition already mentioned (Basle, 1562). It is clear from his writings that Galen dissected apes, preferring them on account of their resemblance to the human subject, and he mentions specially that those physicians who had the opportunity of examining the bodies of their enemies slain in the German war, waged by Marcus Aurelius, could make out little more than the position of the viscera unless they had been previously versed in the dissection of animals, and especially of the ape.⁸ In the same passage he refers to stray chances of examining the bodies of young children who had been exposed, of robbers who had been slain, or of those condemned to be exposed to

wild beasts. But whilst it seems plain from such remarks that human dissections were rare, although not unknown, it is equally clear, from the following extract, that Galen had the benefit of the study of human osteology in Alexandria, and he advises his pupils to go there for this purpose.

[Study of Osteology.]—This indeed will be absolutely necessary for you, that you make yourself thoroughly acquainted with the subject, not only from a book, but with your eyes as a diligent observer of human bones; this is more easily done in Alexandria, because, the physicians of that place in expounding to their pupils the science of the bones exhibit them for their inspection. I am, therefore, of opinion that you should endeavour to make a stay at Alexandria, if for no other reason than this alone. If you cannot manage to do this, you can examine human bones in the way I adopt, for I have often studied them in certain burying places or in ruinous tombs. Sometimes, also, a river having overflowed, a few months previously, some ill-built burying place, has washed out its contents, and has conveyed a whole body even the length of a stadium, carrying it along by the impetus of its own motion, the flesh being in a state of putrefaction, but the bones still cohering, until it has been caught in the nooks of some elevated piece of ground and landed there. When such an occurrence has happened, a medical man should carefully prepare it [*i.e.*, the cadaver] for the teaching of his pupils. Sometimes, also, we see the skeleton of a robber lying on a hill-side, a little way off the road, who, when making an attack, has been killed by some traveller in self-defence. No inhabitant of the district would order the body to be buried, but would rather, pursuing it with hate, take a pleasure in leaving it to be devoured by birds; and these having, for a couple of days, been removing the flesh, have left a dried skeleton, as it were, to anyone willing to examine it for instruction. But if no opportunity of this kind turn up, you can still avail yourself of the individual bones of dissected monkeys, having first removed the muscles; for which purpose you will select those monkeys which most closely resemble the human figure (Kühn, vol. 2, p. 220).

One of the most important points demonstrated by Galen was the presence of blood, as distinguished from air or vital spirits, in the arteries and aorta. This he contended for by experiment and by argument. The following graphic and very accurate account is quoted from Dr. Kidd's paper.

[Blood in Aorta.]—There are some teachers, Galen says, who are in the habit of advancing opinions which they are not prepared, and, therefore, not inclined, to put to the test. Such was the case with a certain teacher of anatomy, who, having declared that the aorta contains no blood, and having been earnestly desired by several ardent pupils of Galen to exhibit the requisite demonstration, they themselves offering animals for the experiment, declined, after various subterfuges, to satisfy them without a suitable remuneration, on which the pupils immediately raised a subscription among themselves for the purpose, to the amount of a thousand *drachmæ* (equivalent probably to about twenty-five or thirty pounds of our money). The professor being thus compelled to commence the experiment, totally failed in his attempt to cut down upon the aorta, to the no small amusement of the pupils, who thereupon taking up the experiment themselves, made an opening in the thorax in the way in which they had been instructed by Galen: passed one ligature round the aorta at the part where it attaches itself to the spine, and another at its origin; and then by opening the intervening portion of the artery, showed that blood was contained in it. (See also Kühn, vol. 2, p. 642).

But Galen as a philosopher and logician could contend by argument on such subjects as well as by experiment. In those old times medical questions were discussed by means of all sorts of arguments and reasonings, often of the most dubious character. In dealing with such arguments Galen is highly sarcastic.

[Syllogisms as to blood-vessels.]—But if the controversy were to go on, what could they answer (were they only willing to be consistent), but that there exists no art of deduction, and that from given hypotheses anything can be inferred without distinction? Or, that the art indeed exists, but is not needed in clinching demonstrations? But both positions are utterly absurd. For if they were to take up the former position (as a certain fellow of shameless front once had the hardihood to do), they might then hear from us, in turn, such arguments as he heard. "The arteries have two coats, blood is tawny, *therefore* the arteries contain not only air but blood as well." On their laughing, I immediately added this other syllogism, "crows are black, swans are white, *therefore*, not air alone is contained by the arteries." When they laughed afresh at this, I subjoined a third reasoning, "Fire is hot, snow is cold, thou art stupid, *therefore* not air only is contained in the arteries." For if *anything* can be inferred from given premises, and there exists no art of drawing a conclusion, what is to prevent me from arguing in this way with you? But if there be a certain art and well-considered science which teach us to discriminate in individual cases, and what can be in-

⁸ At qui in aliis animantibus et potissimum in simia prius se exercuerit promptissime singulas quæ inciduntur partes detegit (Kühn, vol. 2, p. 385). And again: Quenadmodum nec medici bello Germanico barbarorum corporum insectionis potestatem habentes amplius quippiam didicerunt iis quæ coqui intelligunt (Kühn, vol. 13, p. 604).

ferred from certain premises, which man appears to you, O disciples of Erasistratus! to have more sense, whether he who knows no art, or knowing does not use it? or he who both knows and uses it?" (Kühn, vol. 4, p. 727).

Further points of interest may be gathered from the following quotations from Dr. Kidd's paper:

[Relation of Heart and Arteries.]—In giving an account of an experiment intended to prove that the arteries contain blood, he says, that after having made a ligature on the femoral artery, you will observe the pulsation between the ligature and the heart, but not between the ligature and the extremities. (Kühn, vol. 2, pp. 646-9). In another part of his works he makes the general observation that the heart is evidently the source of pulsation, since, if a ligature be made in any artery, pulsation continues in that part of the artery which is intermediate to the ligature and the heart, but ceases in that part of the artery which is intermediate to the ligature and the extremities. (Kühn, vol. 4, p. 683). But how unprepared he was for the discovery of the true circulation of the blood is evident, from his confession that he is totally unable to explain why Nature, which does nothing uselessly or without design, should have made different vessels—namely, arteries and veins—to contain the same fluid. (Kühn, vol. 4, p. 722).

[Physics of Sucking from the Breast.]—It appears that Galen, although ignorant of the doctrine of atmospheric pressure, was acquainted with some of its practical effects. Thus, he says, if you put one end of an open tube under water and suck out the air with the other end, you will draw up the water into your mouth, and it is thus that infants extract milk from the mother's breast. (Kühn, vol. 5, p. 708.)

[Experiments on Ureters.]—If, he says, you open the abdomen of a living animal, and make a ligature on the ureters, you will find that no urine passes into the bladder; but after having loosened these ligatures, you will observe the bladder become gradually distended with urine (Kühn, vol. 2, p. 36); and if, when the bladder has been distended with urine, you fix a sufficiently tight ligature on the penis, and compress the bladder even with considerable force, you will find that no urine repasses into the ureters, and for this he accounts by the oblique entrance of the ureters into the bladder, the obliquity of the entrance forming a natural valve, the action of which valve, he adds, is so perfect as to prevent the regurgitation not only of liquids, but even of air, as is proved in the common inflation of the bladder of any animal. (Kühn, vol. 3, p. 390.)

(To be continued.)

INTERNATIONAL CONFERENCE OF RED CROSS SOCIETIES AT ROME.

THE fifth International Conference of Societies of the Red Cross, and of official delegates from the Governments who are parties to the Geneva Convention, will take place, in accordance with the resolution arrived at during the meeting at Karlsruhe in 1887, during the present year at Rome. April 21st has been fixed as the date for opening the Conference. A very large attendance of representatives of National Aid Societies, as well as of delegates from their respective Governments, is anticipated; and the Central Italian Committee of the Red Cross, under the presidency of His Excellency Count Della Somaglia, acting with the concurrence of the Italian Government, has occupied itself in making the arrangements for the meeting. Brigade-Surgeon-Lieutenant-Colonel C. H. Y. Godwin, Professor of Military Surgery at the Army Medical School, Netley, has been deputed by the War Office to attend the Congress.

A programme of the questions proposed for deliberation at the Conference by the Central Red Cross Committees of various countries has already been issued by the Italian Committee. Among the more important of the subjects set down for discussion are the following:—

The Central Committee of Berlin submits for consideration:

1. The best methods of preparing volunteer hospital attendants and bearers of wounded in peace time, so that they may be at once ready for service on an outbreak of war.

2. The most suitable organisation for movable field hospitals.

3. What measures have been adopted in different countries, since the resolutions agreed to on the subject in 1887 at Karlsruhe, for preventing abuses of the sign of the Red Cross?

The International Committee of Geneva submits as questions for discussion:

1. Can the principles and practice of the Red Cross be applied to maritime warfare, and, if so, in what ways?

2. The determination of the disposal of the "Fonds Augusta." This fund, which has been raised to commemorate the late Empress Augusta, on account of the special in-

terest Her Majesty took in promoting Red Cross work, now amounts to 47,700 francs.

The Russian Central Committee proposes the questions:

1. What measures should be taken to extend Red Cross ideas through all classes of society?

2. How to adopt measures for securing the free transport of articles sent by neutral countries and Red Cross societies for the relief of patients in the hospitals of belligerent countries, as well as to obtain their freedom from Custom duties and other taxation?

The Portuguese Central Committee submits for consideration:

1. The best mode of securing uniformity of organisation in the Central Committees of different countries, as well as uniformity of title, so that such countries as China, Turkey, and others, may be included in a designation common to all.

The Central Committee of Greece proposes as questions:

1. The best modes of establishing and conducting the official relations between the Central Red Cross Committees and their respective Governments.

2. Can a certain amount of uniformity be attained in the volunteer ambulance establishments organised by the Red Cross societies of different nationalities?

The Central Committee of Hungary, at Buda Pesth, submits as questions:

1. In what way can Red Cross societies practise in time of peace at military manoeuvres the duties which will devolve on them in time of war?

2. The most suitable field dressings of wounds?

Other questions are set down for discussion at the Congress, but those above quoted sufficiently show the general nature of the subjects which will engage the attention of the delegates and members. The deliberations will last one week. The presidents and other officers will not be appointed until the Congress meets.

A TRIBUTE TO THE MEMORY OF SIR GEORGE PAGET.

At a meeting of the Governors of Addenbrooke's Hospital, held at Cambridge on March 28th, the President of Queens' College in the chair, Sir George M. Humphry made a sympathetic allusion to the death of Sir George Paget, who had, he said, been connected with that hospital as physician and consulting physician for considerably more than half a century; in both capacities he was a governor of that hospital. The governors all knew what an admirable physician he was, and how great was the benefit which Addenbrooke's Hospital had derived from the services he had rendered. They all knew how remarkably kind and attentive he was to the patients throughout the whole of that period; and how admirable was his work, not only from a medical, but from a moral point of view. They all knew how kind, courteous, and considerate he was to all connected with the hospital—to the patients, to his colleagues, to the nurses, to the governors, and to all concerned. Indeed, he thought they might well say that he was a pattern of an upright physician and of an honourable English gentleman. They all knew how highly his opinion was valued; valued because of the wisdom—that remarkable wisdom—which guided it; by the dispassionate, disinterested manner in which it was given, although often with an ardour and earnestness which indicated his real interest in the subject before him. Sir George Humphry then moved that a letter be written to Lady Paget, and entered upon the minutes of the court, expressing the warm sympathy of the governors with Lady Paget; their great sense of the benefit which the hospital had derived from Sir George Paget's long and valuable services there; and the great loss which not the hospital only, but the town, county, and the whole of the neighbourhood had experienced through his death. The proposition was seconded by the Rev. H. Hall, and carried unanimously.

The annual meeting of the Society for the Study and Cure of Intemperance will be held at 4 P.M. on Tuesday, April 5th, at the rooms of the Medical Society. The President, Dr. Norman Kerr, will deliver an address, and Dr. J. E. Usher, of Melbourne, will read a paper on Some New Methods of Treating Alcoholism.