missures begin as a single string, which forks anteriorly to form the oesophageal ring.

The muscular sack consists of an outer ring-muscle layer and an inner layer of longitudinal fibres.

The blood-vessel system belongs to the latest formations. The dorsal vessel has, for the most part, an asymmetrical position, beginning on the dorsal side of the oesophagus, and running along the left side of the alimentary canal, to end in the region of the dorsally placed anus.

During the metamorphosis the nephridial organs undergo a rapid transformation; the cilia and ciliated funnels disappearing, and the looped portions being reduced to vesicles.

In conclusion, Hatschek discusses the phylogenetic relationship of Sipunculus nudus with Phascolosoma and the annelids. Sipunculus agrees with the annelids in the formation of the germ-lamellae and the gastrula, in the origin of the mesoderm from two primary mesoblasts, in the splitting of the mesoblastic bands into a visceral and a parietal leaf, in the closure of the blastopore, and in the formation of the oesophagus at the point which marks the last portion of the blastopore to close, but differs in having an embryonic envelope, and especially in the absence of any trace of metamerism.

The larva has some characters in common with the Trochophora, which plays so important a *rôle* in the worms and mollusks; but these are such as are generally preserved, even after the Trochophora stage is passed. The points of agreement are, an ectoblastic stomodaeum and proctodaeum and entoblastic mesenteron, and the head-plate (*scheitelplatte*): the points of difference are, absence of a pre-oral ciliated band, weak development of the head in comparison with the body, the possession of a secondary body-cavity (*coelom*), and the absence of provisional head-kidneys and head-muscles.

The absence of any sign of metamerism forms the most important objection to the derivation of the Sipunculidae from the annelids.

Hatschek concludes that the class Gephyrea must be broken up, the Echiuridea forming a sub-order of the chaetopods, and the Sipunculidae allowed to stand in the place hitherto occupied by the Gephyrea, i.e., next to the annelid class. C. O. WHITMAN.

THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION IN WASHINGTON.

THE thirty-fifth annual session of the American medical association was held in Washington, D.C., early in May, beginning on the 6th, and closing on the morning of the 9th.

The mornings were devoted to the transaction of routine business by the general association; and the afternoons, to the meetings of the different sections, the reading of papers, and the discussions resulting therefrom.

The attendance of delegates was very large, the number registered exceeding thirteen hundred. The interest in the exercises was great, and the amount of work done may be favorably compared with that of any previous meeting of the association. A detailed criticism of the individual papers presented, or of the work done in preparation for them, would be out of place and impossible. The several authors will have full justice in the columns of the *Journal* of the association. A review of the meeting as a whole may be of interest, however, together with a consideration of some of the more important incidents which may bear fruit that will affect the community at large.

The first thing that will bear criticism is the enormous amount of material that was placed upon the programme. In the section for the 'Practice of medicine,' etc., besides the leading paper of the first afternoon, there were eight others ready for presentation on the same day. Inasmuch as the session did not begin until 2.30 P.M., there was, of course, no possibility of doing justice to all this work. The possibility of *injustice*, however, was very great, not only in the shortening of the discussions, which should be the most important part of the work, and which should form the channel for the presentation of new or original work by those taking part, but also in the non-presentation of some of the papers at all. This latter point is to be deplored, for the reason that any one who has once put himself to the trouble of preparation, only to suffer disappointment, is not likely to repeat the experiment in the future. Thus, the society may be deprived of the pleasure and profit to be derived from listening to men who may have results of importance to communicate.

Another thing that should be put a stop to in the future, and this once for all, is the action of some of those who took part in the discussions, in reading from manuscript which could not, by the wildest stretch of the imagination, be considered as having been 'notes,' and which in many cases bore only the faintest relation to the subject in hand. An attempt in this way to present a paper where it had no business to be, was fortunately defeated on the afternoon of the third day of the meeting; but this was the only instance of a protest upon the spot that we know of. The invitation to take part in a discussion should be declined, if the recipient does not feel himself sufficiently well equipped to speak in any but this cut and dried fashion. The idea of a discussion, it should be needless to state, is to call out the individual opinions of participants, and not to afford an opportunity for the introduction of papers not on the programme.

A resolution urging the various medical schools of the country to adopt a higher standard for graduation was passed, and should be of interest to all who are concerned about the medical attendance upon their families. If this action should bear fruit, it alone would be enough for the association to have accomplished at one meeting. The loose manner in which so many of the schools of the country grant their diplomas, and the ill effects of such action, can only be fully appreciated by the medical profession itself. Every member of society, however, is, or

should be, interested in so vital a question. None of us know, fortunately perhaps, how, or at what time, the injury may come to us through the ignorance of some of the new-fledged graduates of many of our schools. It should be said again and again, therefore, that the diploma-giving power of many of the medical schools of this country should be in some way regulated according to the thoroughness of their course for a degree.

The movement to induce the International medical congress to hold its meeting of 1887 in this country should meet with the success it deserves. The possible benefits to be derived from this are very great and far-reaching. The presence of so many of the *savants* of the medical world might be of benefit in showing some of us what we do not know. The bringing so near home, too, the results of the scientific labors pursued so much farther abroad than they are with us, might serve to open the eyes of more of our rich men, and lead to the establishment of the scientific laboratories that we need so much.

A committee was appointed to attempt to induce congress to provide for the systematic investigation of infectious diseases in this country, — a forlorn hope truly, so long as our legislators are as they are; but at the same time the slight possibility of success should not hinder the attempt from being made. Those who are interested in scientific investigation of this nature, however, do not look for the establishment of any governmental institution until the average member of that government has lost his desire for a sure return in dollars and cents to an investment.

The lack of scientific work in its purest form was well shown in the discussion upon 'tuberculosis' which took place on the last day of the session. This disease is the centre of scientific medical interest just now, and has been ever since the announcement by Koch of his discovery that its cause could be found in a micro-organism. The evidence brought forward since that time has been strongly in support of the truth of his assertions. The gentleman who opened the discussion did not agree with Koch's conclusions on the ground of personal observations; the basis of his conclusions being reserved, however, for future publication. By far the larger number of those participating in the discussion took sides with Koch; and yet, eminent as most of them were, there was hardly an observation made that was based upon the result of original personal investigation. For this reason the discussion was satisfactory only as bringing out personal opinion as based upon literary, and not upon laboratory work. What is needed in this country, above and beyond any thing else in the medical way, is a corps of scientific investigators devoted to their work, and thoroughly well equipped by temperament and training. Before this comes, however, must be the establishment of thoroughly endowed and completely independent centres where their work can be performed.

This gathering in Washington should teach the impropriety of asking for papers that are not likely to be presented to the meeting, the necessity for a little more control over the methods of discussion, and the need for a better representation of the men especially interested in scientific research, if there be any who have not yet made their appearance.

The needs especially emphasized are the want of a higher standard of medical education throughout the country, and particularly the lack of facilities for scientific research in the newer branches of medicine.

From a professional point of view, the meeting was a successful one in most respects; the papers that were presented showed care in preparation, and, as a rule, a thorough practical knowledge of the subjects treated. As in all such cases, however, the especial benefit to be derived was found in the opportunities presented for personal contact and conversation between men separated by long distances from one another.

HOW EGG-COCOONS ARE MADE BY A LYCOSA.

AT the meeting of the Academy of natural sciences of Philadelphia, May 13, Rev. Dr. H. C. McCook stated, that, while walking in the suburbs of Philadelphia lately, he had found under a stone a female Lycosa, probably L. riparia Hentz, which he placed in a jar partly filled with dry earth. For two days the spider remained on the surface of the soil, nearly inactive. The earth was then moistened, whereupon she immediately began to dig, continuing until she had made a cavity about one inch in depth. The top was then carefully covered over with a tolerably closely woven sheet of white spinning-work, so that the spider was entirely shut in. This cavity was fortunately made against the glass side of the jar, and the movements of the inmate were thus exposed to view. Shortly after the cave was covered, the spider was seen working upon a circular cushion of beautiful white silk about three-fourths of an inch in diameter, which was spun upward in a nearly perpendicular position against the earthen wall of the cave. The cushion looked so much like the cocoon of the common tube-weaver, Agalena naevia, and the whole operations of the lycosid were so like those of that species when cocooning, that it was momentarily supposed that a mistake in determination had been made. After the lapse of half an hour, it was found that the spider had oviposited against the central part of the cushion, and was then engaged in enclosing the hemispherical egg-mass with a silken envelope. The mode of spinning was as follows: the feet clasped the circumference of the cushion, and the body of the animal was slowly revolved; the abdomen, now greatly reduced in size by the extrusion of the eggs, was lifted up, thus drawing short loops of silk from the expanded spinnerets, which, when the abdomen was dropped again, contracted, and left a flossy curl of silk at the point of attachment. The abdomen was also swayed backward and forward, the filaments from the spinnerets following the motion as the spider turned, and thus an even thickness of silk was laid upon the eggs. The