

agitation which determined the crusade against bad drainage and unsanitary appliances in this country.

But the inquiring spirit of the scientist, which abhors blind empiricism, and seeks always to reach the root of the matter, has again been exercising itself on the question of the spread of disease by sewer-gas, and it is significant that in the most recent report to hand on sewer-air, the direct connection of the latter with the distribution of zymotic disease is declared to be still wrapped in mystery and uncertainty, and we find our precise and scientific information on this subject as meagre as it was some thirty years ago. All the more important and welcome, therefore, are some very original investigations which have just been published by Dr. Alessi, who has not contented himself with finding very few and harmless microbes in sewer-air, but has submitted the whole question of its relation to typhoid fever to a searching experimental inquiry.

For this purpose the effect of inhaling sewer-air and the gases from putrifying materials was examined on animals—rats, rabbits, and guinea-pigs being selected. After exposure to sewer-air, which was accomplished by placing them in a box with a perforated bottom communicating directly with a drain, they were inoculated with a small quantity of only a slightly virulent cultivation of the typhoid bacillus, whilst other animals were similarly treated, except that they were not compelled to inhale these noxious gases, but were kept in their ordinary surroundings. The rats, after inhaling this foul air, began to lose their vivacity, and after a time grew thin, although they eat voraciously, and out of forty-nine which were inoculated with typhoid germs thirty-seven died exhibiting the typical symptoms of typhoid infection. Of those forty-one rats, however, which, although infected with typhoid, had not inhaled sewer-air, only three succumbed. Thus the inspiration of drain-air had so far predisposed these animals to infection from typhoid that a small dose of an almost harmless growth of this organism proved very fatal to them. Guinea-pigs and rabbits exposed in like manner to gases from materials in a condition of active decomposition also acquired a predisposition to typhoid infection, for out of seventy-two guinea pigs inoculated, fifty-seven died, whilst not one of those treated with typhoid germs in ordinary surroundings succumbed. Every one of the eleven rabbits similarly treated died, but not one of the inoculated animals kept in ordinary surroundings. Dr. Alessi also found that the inhalation of these gases from putrid substances enabled a small dose of a weakened culture of the *B. coli communis*, normally present in the intestine, to produce fatal results when purposely introduced into the animals thus exposed.

It was also ascertained that it was during the first two weeks of exposure to these noxious gases that the animals were most easily predisposed to typhoid infection, for no less than ninety per cent. of all the animals inoculated during the first fortnight died, whilst seventy-six per cent. succumbed of those inoculated in the third week. This fact may, says Dr. Alessi, partly explain how it is that some people who habitually breathe contaminated air do not appear to suffer any evil results, having gradually in course of time become accustomed to it, whilst a stranger exposed to the same conditions without previous experience may suffer very severely. The degree of predisposition, however, whilst varying in different animals, would also vary in different people.

These investigations must be regarded as a noteworthy and an important contribution to our knowledge of the distribution of disease, affording as they do so remarkable an experimental confirmation of the wisdom of a policy of sanitation dictated by instinct and intuition.

ANOTHER NEW BRANCHIATE OLIGO-CHÆTE.

ABOUT two years since I described in the columns of this journal (vol. xiv. p. 109) an Annelid belonging to the family Tubificidæ, which was unique in that family in the possession of a series of branchial processes upon the posterior segments of the body. This worm, as I reminded the readers of NATURE on Jan. 11 (vol. xlix. p. 247) was found in the "Victoria Regia tank" at the Botanical Society's Gardens—a locality which has produced many interesting invertebrate animals. I have now to record the existence of another Oligochæte Annelid in which branchial processes of a very similar nature to those of *Branchiura Sowerbii* are found. This worm was sent

to me by Dr. Michaelsen, of Hamburg, a well-known authority upon this group of animals; it had been collected by him in South America during a recent expedition for collecting purposes to that country. With great generosity he has handed over to me for study the bulk of the Oligochæta which were brought home by him from Patagonia, the Argentine, and Chili; and the species upon which I desire to say a few words here was among those worms. It was discovered in the river at Valdivia, in Chili. The worm, like *Branchiura*, is a member of the family Tubificidæ, but it clearly represents a new genus of that family, into the general characters of which I do not propose to enter here. The collection contains several species of this new genus, for which I suggest the name of *Hesperodrilus*. The gilled species is not unlike the common *Tubifex* of our streams and lakes in outward appearance, but it differs from *Tubifex* and agrees with *Branchiura* in having a series of branchial processes attached to some of the posterior segments of the body; as I have only examined one specimen, it is impossible to say whether the limited number of these gills, in comparison with those of *Branchiura*, is a distinguishing mark; but, in any case, they differ by reason of the fact that they are lateral in position, being attached to the body just below the lateral setæ; in *Branchiura* it will be remembered that they are dorsal and ventral in position (cf. *Quart. Journ. Micr. Sci.* March, 1892, for the more complete description of *Branchiura*). It is well known that the Tubificids, as a rule, live imbedded in the mud with the tail—and not the head—end extruded, and generally waving about in the water; it is thus intelligible how the development of gills upon the posterior, rather than the anterior, end has come about. The single specimen which I have examined possessed about thirteen pairs of branchiæ; these were at first very small, but gradually increased in size towards the end of the body, those upon the terminal segments being, if anything, larger than those upon any of the preceding segments; in *Branchiura* the gills diminish in length towards the extremity; it may be that my specimen of *Hesperodrilus branchiatus* had recently lost the tail, but there were no obvious signs of this. The genus differs from *Branchiura*—and, indeed, from any other genus of Tubificidæ known, unless my *Phreodrilus* be accounted a Tubificid—in that the spermathecae (which are unusually long) open behind the male pores, instead of, as in the other Tubificidæ, in front of them. I mention this point to show that I have not confounded this new gilled Tubificid with *Branchiura*.

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UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—In a congregation held on April 26, Prof. A. H. Green and Prof. C. Lapworth were appointed Examiners in the Final School of Natural Science (Geology), and Prof. H. Marshall Ward and Prof. F. W. Oliver were appointed Examiners in the same school in Botany. All the appointments were made for one examination only.

Notice is given that the final examination for the degree of Bachelor of Medicine will begin on Monday, June 4. Names to be sent in by May 19. The examination for the degree of Master of Surgery will begin on Wednesday, June 13. Names to be sent in by May 30. The first examination for the degree of Bachelor of Medicine will begin on Friday, June 22. Names to be sent in by June 7.

The degree of D.C.L. *honoris causis*, was conferred on Wednesday on Prof. August Weissmann.

At a meeting of the Board of Faculty of Natural Science on Tuesday last, new regulations for the preliminary examinations in Animal Morphology and Animal Physiology were approved of. The new regulations will come into force in Michaelmas Term, 1894.

AT a meeting of the council of University College, Liverpool, held on Tuesday, it was announced that Lord Derby had telegraphed his intention to provide for the endowment of the chair of Anatomy. It was resolved that Lord Derby be requested to allow his name to be permanently associated with the chair. Formal intimation was also given of the endowment of a chair of Pathology by Mr. George Holt with £10,000. It was decided that the new chair should be called the George Holt Chair of Pathology, and that candidates for the chair should be invited