family to which it belongs, but in the Isopoda generally; it is true that in certain forms (*e.g.*, *Phryxus*) degraded by parasitism, there is a similarity between the abdominal appendages, but such a case does not interfere with the truth of the general statement that has just been made, which only refers to perfectly developed forms.

There is an interesting analogy between the structure of *Anuropus*, as regards its respiratory organs, and that of a deep-sea Isopod lately described by Professor A. Milne-Edwards.[1]

In *Bathynomus giganteus*—a colossal Isopod measuring 9 inches in length—the respiratory organs are very remarkable and unlike anything that has been met with in other Isopoda except in *Cepon* and *Ione*. "It appears," says M. Milne-Edwards, "that the respiratory apparatus of an ordinary Isopod is insufficient to fulfil the physiological needs of *Bathynomus*, and that the development of special organs of a greater functional power has been rendered necessary. The abdominal limbs, which ordinarily in this group constitute the sole branchial apparatus, form in *Bathynomus* a kind of opercular system, beneath which are found the real respiratory organs or branchiæ." These structures are, in fact, represented by a series of branched outgrowths of the abdominal wall, which contain abundant blood spaces, as has been proved by injection. The branched appendages of the genera *Cepon* and *Ione* are quite rudimentary as compared with those of *Bathynomus*.

Now, in *Anuropus* the same need for increased respiratory power has been satisfied in a different way. Instead of the development of accessory branchial organs, as in *Bathynomus*, an additional pair of abdominal appendages have been pressed into service as gills. *Anuropus* is, therefore, more typically Isopodan in structure than *Bathynomus*, and, indeed, presents us with an exaggeration of a character which is common to the group, and forms an important item in its definition.

It is evident from these two instances that there is a need for increased respiratory surface in deep-sea animals, and, not to go into a detailed summary of facts, I may remind the reader that the dorsal processes of some of the curious deep-sea Holothurians described by Dr. Hjalmar Théel are probably analogous. It is well known that the percentage of oxygen is less in the bottom waters than at the surface, and hence has arisen the need to make the most of the failing supply of this gas. I have carefully examined the other Isopoda with a view to discover if there were present any other modifications of a like nature to those which occur in *Bathynomus* and *Anuropus*. In a deep-sea Sphæromid described above under the name of *Cymodocea abyssorum*, the branchial organs are more fully developed than in the majority of species belonging to that family. In the typical Sphæromidæ, as is well known, only the fourth

[1] *Comptes rendus*, January 1879. There is a figure (two-thirds the natural size) of this most remarkable form in a work by M. Filhol, lately published, and entitled La vie au fond des mers; see p. 148 for description.