Finally, in the adult the pulmonary artery conveys almost pure venous blood, and thus commences to realize the conditions exhibited by the circulatory system of vertebrates with separate ventricles.—*Comptes Rendus*, t. cxix. no. 1 (July 2, 1894), pp. 98–100.

Branchiate Pulmonates. By M. Paul Pelseneer.

I. Among the aquatic pulmonate Mollusca of Madagascar there is found a sinistral form which normally exhibits, below the pulmonary aperture and to the left of the anus, a well constituted *gill*. This gill is *plicated*, and not pectinated (that is to say, that it is formed like that of the Opisthobranchs), and is attached merely by its base. But it is not homologous with the gill or ctenidium of the rest of the Gastropoda: it is, as a matter of fact, situated entirely outside the pallial chamber, while in the latter it is contained within it. It is therefore a new formation.

II. The appearance of this organ upon a Pulmonate is explained by the study of our indigenous forms, certain of which already possess this gill, but in a less developed condition: *Planorbis* and *Ancylus* may be taken as instances.

Planorbis corneus exhibits, outside the pallial or pulmonary chamber and to the left of the anus, a flattened, smooth, and extensile tegumentary lobe, the structure of which reveals its respiratory function; the same lobe, proportionately smaller, exists in *Planorbis marginatus*.

Ancylus also possesses this lobe (on the right side in *A. lacustris*), which in this case has for a long time already been designated the *gill*, and which performs the functions of such an organ in a continuous manner, for in this genus *there is no longer any trace of a pallial chamber (or lung)*. Now we know that *Planorbis* is of a much less aerial habit than *Limnæa*, and we are also aware that in pure water *Ancylus* remains almost entirely immersed (which explains the disappearance of its lung).

These Pulmonates, having lost the original molluscan gill (or ctenidium), but having subsequently reverted to an aquatic life, there is nothing astonishing in the fact that they have developed a fresh gill, morphologically different from the former, although in the case of the Pulmonate from Madagascar it has a similar conformation; we have here merely a remarkable example of *homoplasy* and of the irreversibleness of evolution, that is to say of the powerlessness of an organ which has been lost to reappear.

III. The mollusk from Madagascar in question is only known conchologically, and bears the name *Physa lamellata*. But its whole organization shows that it does not belong to the genus *Physa*; I confine myself here to pointing out the absence in the latter (as in *Limnæa*) of the para-anal branchial apparatus.

Physa lamellata constitutes the type of a genus very closely allied to *Planorbis*, which I propose to term *Pulmobranchia*.—*Comptes Rendus*, t. cxix. no. 5 (July 30, 1894), pp. 354, 355.