

structures they would be placed in different groups, the one being normal though often varying, the other only occasional, they are on the same footing for the purposes of this argument. It is known to be a vestige of the structure joining the intestine by which, at an early stage of the evolution of the animal frame, nourishment is introduced. All trace of it usually disappears, but occasionally part of it remains as a pouch opening from the small intestine. It has the usual coats of intestine, the inner coat presenting the same food-absorbing villi. It is therefore acting, but no one will argue that it is designed for use in those comparatively few persons who possess it. Unfortunately it is sometimes the cause of death. The author had met with cases of this, and it is well known to surgeons. It may be unable to expel its contents; or by adhering to a neighbouring part a noose is formed, a most dangerous condition, a sort of bowel-trap, through which a knuckle of intestine slips, and strangulation, followed by death, is the result. Here then we have an elaborate structure which is useless, or worse because dangerous. Were a railway contractor to leave open a siding which he had used in the construction of the line, the train might dash into it and a fatal accident result. This is exactly what is done when this diverticulum of the small intestine is left unclosed, and the fatal accident occasionally occurs. Were further illustration necessary we might refer to the fact of disease sometimes attacking that functionless structure the rudimentary breast in the male.

The consideration of such structures as the diverticulum may be said not to take us farther than to clear the ground, showing us that we have been on the wrong path. But a survey of rudimentary structures generally carries us farther. On the hypothesis of the independent origin of species they are unintelligible, while the hypothesis of evolution furnishes a clue to the whole. The facts of embryology, of palæontology, of rudimentary as well as developed structures are harmonised, and the whole present themselves as the result of the operation of a great law, the equivalent in the organic world of the law of gravitation in the inorganic. Although we do not as yet see so well how this biological law operates, the anatomist sees enough to make him feel that he is shut up to some form or other of the theory of evolution, and that the notion which we imbibed in our early years, and have long cherished, that so-called species arose independently of each other, must be a mistake.

The slow progress which this view has made in this country compared with Germany, the author attributed partly to the teleological bias which anatomy early received among us, but mainly to the fact that anatomy has been taught in the medical schools of this country for the most part as a mass of detail in its professional application, without reference to the ideas which it suggests when more widely and profoundly studied as a science.

### SCIENTIFIC SERIALS

*Ocean Highways*, October.—The principal article in this month's number is one by Lieut. Salaverry, of the Peruvian Navy, on the "Navigation of the Upper Amazon and its Peruvian Tributaries," in which he gives some very interesting particulars of the measures that have been adopted by the Peruvian Government to open up and encourage the flow of commerce along the great fluvial highways which connect the rich provinces of the Andes with the Atlantic. The amount of work done by the Peruvian Government during the last few years in the exploration of the region with which the article is concerned is wonderful, and we are sure quite unknown even to many of those who take an interest in geographical discovery. Captain Davis contributes a second article on the *Challenger*, which is followed by one on the Pacific Railways of the South, *i.e.* the Southern United States. Two very interesting narratives are "A Visit to the Kuh-I-Khwajah in Sistan," the place mentioned being a remarkable hill to the west of Naserabad, the chief city of Sistan; and "A Visit to Kuloja," by Mr. Ashton Wentworth Dilke, the plain of Kuloja being "a continuation of the Seven Rivers country running up between the Ala Tau and Thian-Shan Mountains."—Mr. E. G. Ravenstein contributes a paper on "Elmina, and the Dutch Gold Coast," which is followed by an article on the *Polaris*, the usual reviews, proceedings of societies, &c. There are Maps of the former Dutch Possessions on the Gold Coast, of the Amazonas in Peru, of the

Pacific Railways of the South, and a Chart of the *Challenger's* course to the Cape de Verde Islands.

*Bulletin de la Société Impériale des Naturalistes de Moscou*, No. 3, 1872.—In a paper on tantalum, in this number, M. Herman describes five different combinations of the metal with oxygen, two only having been hitherto known.—There are several zoological and botanical lists.—M. Becker gives an account of beetles and flies met with on a journey to the Astrachan region; Mr. M'Lachlan gives drawings of some new species of Phryganides, and a *Chrysopa*, found in Finland and the Caucasus; M. Hochhuth enumerates the beetles of Kien and Volhynien, &c., while M. Lindemann furnishes a report on the formation of his herbarium.—M. Lubimoff's paper on a new theory of the field of vision and magnification of optical instruments, has been elsewhere noticed in our columns.

No. 4 (1872) commences with an interesting article, with illustrations, by M. Mayewski, on evolution of the barbules of *Begonia manicata*, showing the various stages from that of simple hairs consisting only of epidermic cells.—Some strictures on M. Lubimoff's views as to the field of vision are offered by M. Bredichin, who thinks the theory neither new nor exact.—M. Hochhuth continues his list of beetles (as also in the following number), and M. Kryloff describes some geological formations in the Government of Kostroma.—Dr. Dreschler communicates an account of a collection of mathematical and physical apparatus in Dresden: and the number concludes with a table of meteorological observation in Moscow, in 1872.

### SOCIETIES AND ACADEMIES

#### LONDON

Royal Horticultural Society, Sept. 17.—General Meeting.—Mr. Henry Little in the chair.—The Rev. M. J. Berkeley called attention to some pears, part of which were cracked and small, while the rest were perfect. They had been taken from opposite sides of the same tree, and the difference was probably caused by injury from wind when in a young state.—Mr. Bull exhibited for the first time *Odontoglossum Roechlii*, a near ally of *O. vexillarium*, and which Prof. Reichenbach suggests may be a hybrid between that species and *O. Phalenopsis*.

Oct. 1.—General Meeting.—Mr. Henry Little in the chair.—The Rev. M. J. Berkeley alluded to the numerous interesting and rare species of fungi which were exhibited. *Faxillus atro-tomentosus*, sent by the Rev. W. W. Newbould from Woburn; *Russula aurata*, by Miss Hubbard, from Horsham; *Hydnum squamosum*, new to Britain, from Somerset, by Mr. Aubrey Clark; *Cortinarius orellanus*, also new to Britain, from Epping Forest, by W. G. Smith, &c. Mr. Berkeley also referred to Schwendener's theory as to the nature of lichens. Bornet had recently published an admirable paper in support of the same views. He himself, however, was not convinced of their correctness. On the contrary he believed he had seen the gonidia of *Parmelia* originating from hyphæ within the cells of some drift wood from the Arctic regions. He also read a letter from Dr. Thwaites, of Ceylon, who thought that the symmetrical growth of the lichens was an argument against one portion being parasitic on the other.

#### PHILADELPHIA

Academy of Natural Sciences, June 10.—Dr. Ruschenberger, president, in the chair.—Mr. Gentry made the following remarks:—At the last meeting of the Academy, Mr. Meehan made some observations upon the peculiar structure of the flowers of *Pedicularis canadensis*, observing that he had vainly watched them during two seasons with the view of determining the manner in which they were fertilised. He further said that he had noticed that they received the attention of a species of humble-bee, for the sake of their honey, which, in order to accomplish its purpose, always bored a hole into the side of the tube. On Wednesday morning last, I visited a spot where the plants were growing luxuriantly, affording an interesting field for observation. It was not long before I observed a *Bombus terrestris* to alight upon the outer side of the tube of a flower, at a distance of three feet from me. At this distance it did seem as if the bee in order to obtain the honey which it secretes, produced a slit into the tube, as Mr. Meehan observed. But the movements of the bee being so quick, and the distance too great to judge accurately, I ap-