

the usual clouds, and only on one night was the sky obscured. Further, he gives a detailed account of his observations of the sky on the night of May 18-19, but beyond an exceptionally fine display of the zodiacal light no special phenomena were remarked.

Photographs of the comet taken at Helwân, Kodaikanal, Johannesburg, &c., were shown at the meeting of the Royal Astronomical Society on Friday last, and all of them show plainly what a striking object the comet was in more favourable latitudes and in clearer skies. The long straight tail is seen to have a very complicated structure of fine filaments and waves.

Several observers have forwarded to us accounts of recent observations of the comet. Mr. Leach, of Malta University, states, on June 8, that the comet had been seen every evening since May 20, and, although fainter, the tail still extended some 20° or 30°. It was best seen on June 1, when the tail extended nearly to Jupiter. He also remarks on the change in the appearance of the nucleus, which, latterly, was quite stellar in character and of about the second magnitude.

Mr. J. W. Scholes, of Grimscar, Huddersfield, sends an account of observations made at Morecambe Bay. A sketch, made at 11.10 p.m. on May 31, in a clear, cloudless sky, shows three plumes, or tails, two shorter ones lying beneath, and separate from, the main tail. The lowest, and shortest, is quite near to Castor and Pollux, and nearly parallel to a line joining them. No simple, definite explanation of this apparition is yet forthcoming.

PAPERS ON INVERTEBRATES.

IN the May number of the *Entomologist's Monthly Magazine*, Dr. D. Sharp records the history of the discovery in the New Forest of a new species of arboreal beetle of the genus *Corticaria*. One species of this genus, *C. similata*, was for thirty-seven years known as British only by a single specimen. In 1908 beetles of this genus were taken on an oak-tree in the New Forest and identified with that species, which they seemed to indicate to be sexually dimorphic. Other specimens procured, both in the Forest and at Woking, demonstrated, however, that not only was *C. similata* re-discovered in Britain, but that the former area is the home of a new species, for which the name *C. lambiana* is proposed. *C. similata* has been subsequently taken in Scotland.

To the Proceedings of the Academy of Philadelphia for December, 1909, Mr. T. H. Montgomery contributes the second part of his observations on the habits of spiders. Particular interest attaches to his account of the breeding habits of *Pisaurina*, the species of which closely resemble the *Lycosidæ* in structure, but differ by being arboreal instead of terrestrial during the cocooning season, and in carrying the cocoons by means of the chelicera instead of suspended from the spinnerets. The large white cocoons of one species are usually found on poison-ivy (*Rhus toxicodendron*); and from observations on specimens kept in confinement it appears that the female carries the cocoon about with her until a few days before the young are ready to hatch. As they emerge, she commences to enclose them with a network of lines, she herself remaining on the outside of the nest thus formed. In this manner the old cocoon and the young spiders are eventually enclosed in a complete nest, which may take as much as three days to construct.

The January and February issues of the same serial for the current year are occupied by papers on molluscs—for the most part American land and fresh-water forms—among which the longest is one by Messrs. Pilsbry and Ferriss, on the land-snails of the south-western States. As the result of their study of Arizona snails, the authors have been led to doubt the power of environment as a main factor in the differentiation of species, and to regard this as capable of explanation only on the hypothesis of variations in the egg, leading to modifications of the organism, for the most part not affecting the well-being of the race. Such adaptation as exists is probably due to selection, and the isolation of colonies would favour the perpetuation of mutations.

Fresh-water gastropods of the genera *Limnea* and *Physa* progress, it is well known, by crawling, back-downwards, on the surface-film of the water. On p. 42 of the serial

just cited Mr. H. S. Cotton shows that the same mode of progression occurs in the case of a marine bivalve of the genus *Modiolaria*, the remarkable feature in this instance being the small size of the area of adherence.

To the May number of the *American Naturalist* Dr. H. A. Pilsbry communicates a note on a new type of barnacle (*Stomatolepas prægustator*) inhabiting the mucous membrane of the throat of the loggerhead turtle. Although sessile barnacles are well known to infest the external surface of turtles and whales, while certain parasitic forms penetrate the integument of their crustacean hosts, no commensural thoracic type appears to have been previously described. *Stomatolepas* belongs to the subfamily *Coronulinæ*, and is nearly related to *Tubicinella*, which lives on the skin of whales, and *Stephanolepas*, a barnacle found imbedded in the horny plates of the shell of the hawkbill turtle.

SOME BIOLOGICAL SERIALS.

THE frequency with which the successive numbers of the *Quarterly Journal of Microscopical Science* make their appearance may be taken as an index of the activity in research—of a particular kind—on the part of British biologists, and the editor is to be congratulated on the issue of seven parts of what used to be literally a quarterly journal during the last twelve months. The April number (vol. lv., part i.) maintains the usual high standard of this publication. It opens with a detailed description, by Prof. G. C. Bourne, of the anatomy of a remarkable New Zealand mollusc, *Incisura (Scissurella) lytteltonensis*, illustrated by five carefully drawn plates. Mr. W. J. Dakin gives a very full description and discussion of the eye of the scallop—*Pecten*—an organ which, on account of a certain resemblance to the vertebrate type of eye, has for a long time past attracted a large share of attention from biologists, and which lately, we believe, has played a not unimportant part in the theories of philosophers. Mr. Dakin concludes that "there is no ground whatever for placing the *Pecten* eye in the same class as the vertebrate eye, for the resemblance is very superficial, and though the retina is inverted in both cases, this has been produced in very different ways." Prof. E. A. Minchin and Dr. H. M. Woodcock have a paper on the blood-parasites of certain fishes, accompanied by three of those remarkably beautiful plates which we have learnt to expect from protozoologists. A special welcome should be extended to another protozoological paper, the first, we believe, from the pen of Mr. Julian S. Huxley, grandson of Prof. T. H. Huxley, which deals in a very thorough manner with a new genus and species ofregarine from the digestive tract of that remarkable crustacean *Anaspides tasmaniae*. Both this memoir and that by Prof. Bourne, already referred to, are based on material obtained by Mr. Geoffrey Smith on his recent trip to Australasia. The number concludes with a reprint of Prof. Hubrecht's address to the Boston meeting of the International Zoological Congress on the foetal membranes of the vertebrates, in which the author elaborates his remarkable views on the interpretation of mammalian development.

In the second volume of the *Zeitschrift für induktive Abstammungs- und Vererbungslehre* Prof. G. Steinmann further elaborates his theory of the extreme polygenetic origin of the Mammalia. This is a new and somewhat startling hypothesis which does not seem, as yet, to have attracted much attention in this country; its acceptance would involve a far-reaching modification of generally adopted views as to the phylogeny of the Vertebrata. The reptiles, which are themselves supposed by Prof. Steinmann to have arisen polyphyletically from the Amphibia, are divided into two groups, the Orthoreptilia, which include the existing crocodiles, chelonians, lizards, and snakes, and the Metareptilia, which include extinct forms which have no reptilian representatives at the present day. The Metareptilia are again divided into Avireptilia, which are supposed to be the ancestors of the birds, and Mammoreptilia, from different groups of which the various lines of mammalian descent are traced. Thus the Ichthyosauria are regarded as the ancestors of the Delphinoidea, the Plesiosauria of the Physeteroidea, the Thalattosauria of the Mystacocœti, the Pterosauria of the Chiroptera, the

Theriodontia of the Carnivora, and so on. The author bases his theory mainly upon palæontological evidence, but the ordinary zoologist will find it difficult to believe that such highly specialised mammalian features as the development of hair, the allantoic placenta, and the habit of suckling the young have been evolved many times over, and yet always in conjunction with one another.

The third part of the second volume of Dr. J. W. Spengel's "Ergebnisse und Fortschritte der Zoologie" contains two useful summaries. The first, by Mr. H. F. Nierstrasz, deals with recent additions to our knowledge of the Chitons, which has enormously increased during recent years. The second, on the physiology of the faceted eye, by Mr. Reinhard Demoll, is based almost entirely on Exner's classical, but no longer very recent, work on the compound eyes of crustaceans and insects. The problem presented by these eyes is an extremely complex one, and really lies in the domain of the student of physical optics rather than that of the zoologist. On the whole, it appears that the Müllerian theory as to their mode of action still holds the field, but that this theory is not equally applicable to all cases.

REPORTS ON ICE IN SEAS AND OCEANS.

THE report on the state of the ice in the Arctic seas during 1909, published by the Danish Meteorological Institute, possesses more than usual interest on account of Admiral Peary's remarkable sledge journeys in the spring of that year. It summarises the conditions for each month, so far as known from reports supplied by traders to those parts, with maps for April-August inclusive. The state of the ice was unfavourable in Barents Sea and round Spitsbergen, while in the Greenland Sea and Denmark Strait the ice boundary was much more westerly than usual. The coasts of Iceland were almost free of ice, but much was observed off Newfoundland and on the Transatlantic steamer routes. On the south-east of Greenland and in the North American archipelago conditions were very favourable; in the Bering Sea they were about normal, and in the Beaufort Sea rather favourable, especially towards the middle of the summer. It is inferred that the amount of ice along the south-east of Greenland will be somewhat small in 1910, and that favourable conditions along the south-west coast of Greenland may result during the summer of this year.

From statements made on the useful monthly meteorological charts for the North Atlantic and Indian Oceans for April last, issued by authority of the Meteorological Committee, it appears that ice was scarce in the Southern Ocean during 1909. Up to about the middle of March last reports of only forty bergs passed in that year were received by the Meteorological Office; half these related to a position midway between New Zealand and Cape Horn. A later chart, however, states that from December, 1909, they commenced to be rather frequently reported. Tables referring to the bergs met with in previous years show that lengths of six to thirty miles are not uncommon, while some thirty of those sighted in that ocean in the last quarter of a century were 800 feet or above in height. Up to the present time, the report states, the birthplace of the largest of the bergs (1000 to 1500 feet in height) has not been definitely settled.

THE INTERNATIONAL HORTICULTURAL CONGRESS.

THE International Horticultural Congress at Brussels, April 30 to May 3, was attended by a large number of representatives, including delegates from the important horticultural societies. The meetings took place in the Salle des Fêtes in the grounds of the Great Exposition, at that time in a very incomplete state. Among the various subjects discussed was that of horticultural nomenclature. While there has been a general desire on the part of the more scientific horticulturists to conform to the rules of botanical nomenclature agreed upon at the International Botanical Congress at Vienna in 1905, it was felt that certain details which were not discussed at Vienna, but which were of special interest to horticulturists, should be definitely settled. The congress was unanimous in agreeing to adopt the Vienna rules of nomenclature, with neces-

sary additions in the case of horticultural varieties and hybrids. It was agreed that the names of horticultural varieties, expressed, in accordance with the rules, in the vulgar tongue, must remain fixed when used in other languages than the one in which they were originally employed. When possible, the name should consist of a single word, and never of more than two, or at most three, words. To ensure valid publication a description of the variety must be drawn up in Latin, English, French, German, or Italian.

As regards garden hybrids, it was agreed that the specific name may be expressed in Latin, or in a vulgar tongue and written in Roman characters; if possible it should be a single word, but, at any rate, not more than three words. Various suggestions had been made as to the system of nomenclature for artificial hybrids in which two, three, or more genera are involved. In the case of bi-generic hybrids, the general custom was confirmed of forming a Latin generic name by the combination of the names of the parents; the specific name, also in Latin form, is to be separated from the generic by the sign of hybridity, thus, *Laeliocattleya* × *Smithii*. For plurigeneric hybrids the recommendation of the Royal Horticultural Society of London was adopted, namely, the use of a conventional generic name, derived from that of some person of distinction, with the termination *ara*, e.g. *Lawrenceara*.

The programme of the congress also included a visit to the Royal park and conservatories at Laeken, and to the new colonial gardens and plant-houses. The latter contain many plants of interest from the Congo.

LOWELL OBSERVATORY PHOTOGRAPHS OF THE PLANETS.¹

THE pictures which I have the honour of showing to-night represent the results of the new planetary photography originated at Flagstaff in 1903-5, and now beginning to be successfully copied elsewhere, notably this last summer by M. le Comte de la Baume Pluvinel and M. Baldet in France, who from the summit of the Pic du Midi de Bigorre succeeded themselves in getting imprints of the canals of Mars. Although the method was originally designed to exhibit the markings of what is practically our nearest neighbour in space, it has since been applied to the other planets with an outcome as surprising as it is satisfactory. Little details which one would not have supposed could sit still long enough for their pictures to be taken stand out unmistakably on the plates, the faint equatorial wisps of Jupiter offering a good example of such tractability, though by no means the most remarkable.

That the canals of Mars should be made to write their own signatures on a photographic plate was the occasion of the invention of the process, which, after long and patient study by my assistant, Mr. Lampland, they were finally induced to do. To his marvellous feat the best tribute was that of Schiaparelli, who, after recognising the canals on the print sent him, wrote me in wonder that photography could be made to do such work, "I would never have believed it possible." Since then further improvement has been reached, to which almost every member of the staff has contributed. The process is based upon what our visual study of the planets has taught us to be the crux in the matter—the all-importance of definition. For this reason the older celestial photography, which furnishes such beautiful pictures of the stars and nebulae, was here impotent. This will be realised when one considers that the whole disc of a planet could be put inside the image of a single star. For a like cause reflectors cannot be employed, for with them all faults, instrumental or atmospheric, are magnified three-fold over those of a lens. They may give imposing-looking pictures, but the finer detail is lost, a fact which is evident at once to an expert. Now it is in the registration of this finer detail that the accomplishment lies, and which from a scientific point of view marks its importance.

Study of the conditions leading to definition has made these photographs possible, just as lack of such study alone makes possible the scepticism one sometimes hears.

¹ A discourse delivered at the Royal Institution on April 8 by Prof. Percival Lowell.