

LETTERS TO THE EDITOR.

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Antarctic Pycnogons.

ONE of the most remarkable and unexpected zoological results of recent explorations in Antarctic seas has been the discovery of Pycnogonida (so-called "sea-spiders") having five instead of the usual four pairs of legs. Soon after the return of the *Discovery* expedition, Mr. T. V. Hodgson described *Pentanympyon antarcticum*, and a little later he had the good fortune to find, among the collections of the Scottish National Antarctic Expedition, the long-forgotten *Decolopoda australis* described by Eights more than seventy years ago. A second species of Decolopoda was added by Prof. E. L. Bouvier from the collections of the French Antarctic Expedition in the *Français*. The most surprising circumstance connected with this remarkable departure from what had been regarded as the normal structure of the Pycnogonida was that it appeared in two genera by no means closely related to each other, but, on the other hand, not dissimilar in general structure from other "normal" genera. Thus *Pentanympyon* is indistinguishable, except in possessing an extra pair of legs, from *Nymphon*, while *Decolopoda* is only a little more divergent from *Colossendeis*. From the point of view of phylogeny, two explanations of these conditions may be offered. Most authorities, for example, Prof. Bouvier and Prof. D'Arcy Thompson (in the "Cambridge Natural History"), adopt the view that the ten-legged condition is the primitive one, and has been retained by the most primitive members in two divergent branches of the group. The other explanation, first suggested by Prof. G. H. Carpenter and advocated by the present writer (*Science Progress*, April, 1909), is that the decapodous condition is a recent development, appearing independently in the two cases.

Prof. E. L. Bouvier has just announced (*C. R. Acad. Sci.*, July 4) a very important discovery which shows that the zoological possibilities of the Antarctic seas are far from being exhausted. Among the collections obtained by Dr. Charcot's recent expedition in the *Pourquoi Pas?* is a representative of a third genus of decapodous Pycnogons, and, strange to say, it appears to be quite unrelated (within the limits of the group) to the other two. *Pentapycnon charcoti* is a near relative of Pycnogonum, hitherto regarded as the most highly specialised of all Pycnogonida. Further, just as *Pentanympyon* is accompanied by species of *Nymphon*, and *Decolopoda* by *Colossendeis*, so Prof. Bouvier finds that Pycnogonum, hitherto unknown from Antarctic seas, is represented by a new species alongside of *Pentapycnon* at the South Shetlands.

Prof. Bouvier regards this discovery as quite in accordance with his views as to the evolution of the Pycnogonida. He believes that the group has evolved from a decapodous stage in which at least the chief divisions, represented by *Pentanympyon*, *Decolopoda*, and *Pentapycnon*, were already differentiated from one another, and he supposes that the suppression of the posterior legs has occurred independently at least three times with very little accompanying variation in other characters.

No doubt Prof. Bouvier will justify these views in greater detail when he comes to publish his final report on the Pycnogonida of the *Pourquoi Pas?* At first sight, however, the discovery of *Pentapycnon* would seem to weigh heavily on the side of Prof. Carpenter's hypothesis. While *Pentanympyon* is at least as primitive as *Nymphon*, and even *Decolopoda* can be admitted, without much difficulty, as a reasonably primitive form, no student of the Pycnogonida will question that Pycnogonum is one of the most highly specialised members of the group, and the only single character that Prof. Bouvier can find to place *Pentapycnon* on a lower level of specialisation is the presence of additional genital apertures, about which he speaks somewhat doubtfully. The fact that all three genera are found only in one restricted geographical area is also against the idea of their being survivors of a primitive group, for it

can hardly be supposed that the Pycnogonida underwent practically the whole of their evolution in the Antarctic seas, and only became distributed over the rest of the globe when they had reached nearly the final stages of family, and even generic, differentiation. It seems much more probable (though the like has not yet been suggested for any other arthropods) that some mysterious influence of environment in these Antarctic regions has, so to speak, upset the stability of the octopodous condition and led to the independent appearance of an additional somite and pair of legs in several unrelated families.

It is to be hoped that the British expedition now on its way to the Antarctic may obtain material for throwing light on this problem.

W. T. CALMAN.

A New Italian Orchid.

THE enclosed photograph represents, I believe, a species of Italian orchid which has not before been discovered. M. H. Correvon, who is, I suppose, the greatest living authority on the European orchids, considers it "seems to be out of the way of species known." When first I found it, I believed it to be *Serapias triloba*, but, having studied various authorities, I have since come to the conclusion that I was wrong. They all agree that the lip of *triloba* is crenulated, but in my specimen there is no sign of that. *Triloba* is considered to be a hybrid between *Serapias lingua*



and *Orchis papilionacea*; although the ground was covered with the former, I could not find a vestige of the latter in the whole of that district.

Also, the authorities only give the Riviera as the habitat of *triloba*, whilst I found my plant in mid-Italy, near Florence. In my plant the sepals and petals are each very distinct and separate, not joined into a cap, as in all the other varieties of *Serapias*.

It may possibly be a cross between *S. lingua* and *O. laxifolia*, but, even so, it differs much from that pictured in Barla's book. It is a somewhat striking plant, as the flowers are very large in comparison to the rest, both the labellum sepals and petals being a very vivid shade of colour between pink and purple, the former a little darker.

W. HERBERT COX.

Centre of Gravity of Annual Statistics.

THE principle of taking the centre of gravity of annual rainfall is free from objection, but Mr. Cook's method (*NATURE*, March 31) is mathematically incorrect. Annual statistics should not be plotted on a straight line, but round a circular ring in accordance with the probable etymology of the term (*annus, annulus*).

For rainfall in India, results of some value may be obtained by Mr. Cook's method, because practically the