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SOME FISH-NOTES FROM GREAT YARMOUTH AND NEIGHBOURHOOD FOR 1915.

By ARTHUR H. PATTERSON (Associate of the Marine Biological Association of Great Britain).

The Great War has been by no means conducive to an accumulation of my East Coast Fish Notes; on the other hand, it has been most disastrous in its effects upon the fishing industries connected with this and adjacent ports. The Herring fishery had been, up till the commencement of October, practically at a standstill, whilst considerable numbers of fishermen and others connected with this great industry had gone either into the Navy or kindred branches that appertain to it, or had departed into other spheres of labour, not a few going into the Army. A few of my notes will have a somewhat warlike flavour.

During the first week in October some score Scotch boats had arrived to fish from this port, and a few fisher-girls had come south to engage in gutting and pickling operations. Abnormal prices marked the progress of the fishing, varying in degree according to the numbers and qualities landed. Record figures were obtained, which will be mentioned later on. Our shrimping fleet had been much reduced in number of boats, partly owing to the depleted ranks of the men; and those who also remained to dredge for Shrimps, and put in their small trawls for mixed catches, did so under certain restrictions which much hampered them.

NOTE ON THE OCCURRENCE OF HETEROTANAIS OERSTEDI AND OTHER ISOPODS IN CHRIST-CHURCH HARBOUR, HANTS.

By J. AND W. OMER-COOPER.

In the course of collecting along the shore of Christchurch Harbour, Hants, in May last, large numbers of small Isopods belonging to the aberrant group Chelifera were found among the mud and algæ on the upper surface of submerged stones. Upon microscopical examination these proved to be Heterotanais Oerstedi (Kroyer), a species beautifully described and figured by Prof. G. O. Sars in his 'Crustacea of Norway,' vol. ii, p. 14, The Rev. T. R. R. Stebbing, F.R.S., and Dr. W. T. Calman very kindly confirmed this identification, and stated that they knew of no record of H. Oerstedi from the British Isles, the species having been hitherto recorded from the shores of Continental Europe only. This species is of considerable interest on account of the large size and peculiar structure of the chelæ in the male, which are described by Prof. Sars as follows: "Of enormous size, carpus very large and produced in front, outside the hand, to a lamellar lobe, hand imperfectly chelate, the thumb being transformed into a thin, reflexed lappet instricted at the base."

In the same parts of the Harbour in which Heterotanais occurs, two other interesting Isopods are to be found in large numbers. The first of these is Cyathura carinata (Kroyer)—a species closely related to the well-known Anthura gracilis (Mont.), from which it differs in its large size and in several conspicuous anatomical details, chief among which is the absence of the secondary sexual characters seen in the male Anthura. This Isopod is to be found in considerable abundance under stones and burrowing in the mud; its movements are slow, and it frequently leaves the abdomen exposed above the surface of the

mud for breathing purposes. It has only been once previously recorded from the British Isles (from East Norfolk, by Mr. R. Gurney in 1907), but the species is well known on account of the work done on its anatomy by various German scientists—notably the account of the statocysts in the tail of this species (under the name of Anthura gracilis) by Prof. Thienemann. The structure of the sexual stilet of the second pair of pleopods in the male of Cyathura is especially peculiar and interesting, but no description of this appears to have been published.

The third noteworthy species of Isopod occurring in this locality is Paragnathia Halidaii (Bate and Westwood), previously recorded by Mr. A. H. Haliday from Strangford Loch in 1847. Since this species was taken at Christchurch it has been found near Plymouth on June 10th and August 18th by Mr. J. H. Keys, F.E.S., while collecting shore insects for the catalogue of the Marine Biological Laboratory, and given for examination to the Rev. Father Morford, who has also examined specimens taken by Mr. Keys some twenty years ago in the same neighbourhood. Dr. W. T. Calman also has a praniza taken at or near St. Andrews in 1898, which would seem to belong to P. Halidaii. This species is of the greatest interest on account of its anatomy, which appears to be of sufficient peculiarity to be the grounds for its removal from the genus Gnathia and the formation of the new genus Paragnathia to receive it. P. Halidaii is, in the adult stage, almost terrestrial in habits, and is to be found living in small cavities in the banks; the males apparently form small holes leading from these, into which they retire in case of danger. The pranizas, like those of other Gnathiidæ, are parasitic on fish.

It is worthy of note that the water in Christchurch Harbour is brackish, and that the species mentioned above are not truly marine, but are found in places where fresh water is mixed with the salt.