COPEPODS OF THE GENUS MESOCYCLOPS SARS (*)

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Although not able to follow those who would break up the genus Cyclops into a great number of genera, I do accept the genus *Mesocyclops* proposed by Sars in 1914 to include a small group of Cyclopoid Copepods distinct from others, not only in form but also, generally, in mode of life.

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This is the group, typified by *leuckarti* Claus, which Schmeil (1892) had already recognized as the "*leuckarti-oithonoides* Gruppe". In number of species the group or genus has since been very much enlarged, particulary by the addition of species from the Southern Hemisphere.

In respect to habit, it is particularly noteworthy that copepods of this group generally live limnetically and, therefore, in association with Calanoids. Whether or not they show any tendency to "tread water" and to strain, rather than seize their food, as do the Calanoids in contrast to most Cyclopoids, remains to be carefully studied.

The form of Copepods of this group is generally characteristic. The body is relatively slender and tapering, without marged change in width from the last thoracic segment to the first or genital segment of the abdomen or from the first to the following abdominal segments. The marginal contour is smooth with the segments not generally set off from one another. Innermost and outermost furcal setae and the dorsal seta are relatively long, so that the furcal setae approach, without closely approximating, the relatively uniform setae of Calanoids. The antennae seem to be invariably 17-segmented and they have usually, but not invariably, a deeply notched, serrate or sometimes smooth hyaline membrane on segments sixteen and seventeen. The fifth foot is narrow and its second segment bears mesially a long, slender spine or spine like seta, which may be midway of the margin or nearly terminal, and even longer than the terminal seta.

In the Northern Hemisphere *Mesocyclops leuckarti* occurs around the world, and this may possibly be true also of *M. oithonoides* Sars, and *M. hyalinus* Rehberg; one or two species are known only from the northern part of the Eastern Hemisphere; 4 are known from North America (*M. leuckarti* Claus, *M. edax* S. A. Forbes, *M. tenuis* Marsh and *M. inversus* Kiefer), and the two last-named are also found in South America; seven are recorded only from South America; many others have recently been described from Africa and other regions of recent exploration as to copepods. As it now stands, the relatively few collections made in South America have yielded more than twice as many species of this genus as have been found in North America.

The species recorded from South America are *M. annulatus* (Wierzejski, 1893) known from Argentina and Paraguay; *M. longisetus* (Thiébaud, 1893), from Columbia, Argentina and Paraguay; *M. brasilianus* Kiefer 1933; *M. inver-*

sus Kiefer 1936; and *M. elliptieus* Kiefer 1936, from Brazil; *M. meridianus* Kiefer 1936, from Paraguay and Argentina; *M. tennis* (Marsh, 1909), from Paraguay; *M. brehmi* Kiefer 1927, from Uruguay; and *M. minutus* Lowndes 1934, from Brazil and Paraguay.

From Central America there is known as yet only *M. inversus* Kiefer, found in Panama and San Salvador, but originally identified as *C. tennis* Marsh, and *M. hyalinus* (Rehberg.).

A general account of the genus and the American species is embobied in a more extended paper in process of publication in the *Journal of the Elisha Mitchell Scientific Society*.

Unfortunately, too little is known of the variability of these copepods; so that it cannot now be known with reasonable assurance whether all of these species are valid or whether some of them may not be merely ecological variants. The chief characters upon which species within this genus have been based, and, therefore, the characters that call particularly for fuller tests as to variability are: the hyaline plate of the antenna; the relative lengths of spines on the end of the endopod of the fourth foot; the presence or absence of smooth or spinous prominences on the connecting plate of the fourth feet; the relative lengths of the lesser developed of the fureal setae, especially the length of the dorsal seta; the position of the lateral spine on the furca; and the presence or absence of hairs on the inner margins of fureal rami.

It is much be desired that there should be careful studies of the diversity of forms encountered within a particular population group, and particularly that there should be breeding experiments to determine the genetic constancy of form in successive generations bred under different conditions of temperature and nutrition. We need more dependable information as to whether there has indeed been within this genus or group a more extensive differentiation of species in the Southern Hemisphere or whether the multiplicity of southern species is attributable in part to present inadequacy of study of the copepods of the continent.