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work during the coming summer. It is still uncertain if circumstances will allow it to be carried out to its full extent. Some parts, as for instance certain of the proposed lines for hydrographical and biological work, may have to be omitted should the necessary assistance of ships required not be available, but the expedition will, as far as circumstances allow, aim at the full undertaking of all the work proposed, and preparations for the equipment of the ships (gear, instruments) are now in progress.

Before the commencement of the expedition, it seems advisable to give a short review of the results already obtained by the study of the material collected during the year 1914. It is evident that these results can only be regarded as preliminary. The material to be collected during the coming season will, it is hoped, give a much wider basis for the discussion of the problems, the solution of which is now to be attempted, and a final statement will therefore have to wait till further material has been secured and the whole question considered in its entirety. But in the meantime it may be of value also for those who are taking part in the expedition to become acquainted in a preliminary way with the results of the material which has been studied already. The material now before me may throw some light on the following problems concerning the natural history of the herring:—

1. The racial characters of Canadian herring.
2. The age and growth of herring.
3. The fluctuations in the year-classes of herring.

I will in the following pages treat each of these problems separately.

1. RACIAL CHARACTERS.

The fishermen have in course of time made the observation that the herring are not everywhere of the same sort; that different sizes and qualities appear at different times, and in different parts of the sea. This led many to conclude that there are in the North Sea, for example, a great number of different local races of herring, each with a very restricted area of movement, and that the peculiar seasonal occurrence is only due to the fact that the fish, during the period of development of the genital organs, congregate in denser schools, rendering fishery operations profitable. Between the two extreme opinions, that of a great migration, and that of a number of local races, various other theories have arisen, and there exists a considerable series of works dealing with the different hypotheses. Scientific writers on the subject have, also, ever since the time of Linnaeus, distinguished between different races or varieties of herring. There has, however, as Lilljeborg observes, always been a difficulty in classifying them according to definite and constant characteristics. In the earlier literature on the subject, we find several attempts at establishing a sharper distinction between the races by means of measurements and figures. Thus Nilsson attempted to calculate different physical dimensions, in proportion to the total length, for several races of herring, and to compare these proportions as between different races. He calculates in the case of the ocean herring (*forma oceanica*) that the longitudinal diameter of the eye amounts to from one twenty-second to one-twentieth of the total length (to base of tail fin) whereas the corresponding figures for the coast herring (*Skjærgaardssild*; *forma taenensis*) are only from one-seventeenth to one-sixteenth.

This method of distinguishing between different races by measurement of the dimensions of the body has, as is generally known, played an especially important part in the study of the races of mankind (anthropometry) and the attempts which have been made to find some arithmetical expression of such minor racial peculiarities as lie at, or beyond, the limit of immediate visual perception, or are subject to so great a degree of variation that extensive observations are necessary in order to discover the average and the distinguishing characteristic for each separate race.