

lower Crustacea), in spite of a temperature little above, and sometimes definitely below, 0° C.

However, it is particularly in the case of fertilised ova that the power of resisting extreme cold is most marked, for in several groups specially protected winter eggs are produced, which appear able to survive almost any degree of cold. There are the gemmules of the Spongillidæ, and the hard-coated winter eggs of certain Turbellaria and Rotifers; also the resistant eggs of a number of Entomostraca (including the ephippial eggs of the Cladocera), and the so-called statoblasts of fresh-water Polyzoa. These are produced by the parent on the approach of cold weather, and in the spring give rise to new individuals, to replace the adults which have perished.

Some observations of Brauer confirm our belief that the winter eggs are produced with the definite object of resisting cold, and at the same time afford an interesting example of how inherited characters may continue to exert their influence under altered conditions. He found that the eggs of a certain species of *Branchipus* would not develop at all, until after they had been reduced to the temperature of melting ice.

Complete desiccation is a condition which is fatal to all organic life, so that those forms which are able to survive the drying up of a pond or stream have acquired some means of retaining a sufficient amount of moisture to make their continued existence possible. As this is obviously an unfavourable condition, it is not surprising that organisms lead during it a latent life which is strikingly comparable to that induced by extremes of cold. The African mud-fish (*Protopterus*) buries itself in the mud, and secretes an impervious cocoon in which it can exist for months, until the coming of the rainy season. Some adult Rotifers are capable of encysting themselves, and, in this state, of surviving long periods of drought, and the same is true of immature specimens of a species of *Cyclops*, and of certain Protozoa (*Amœba* and Infusoria).

It is nevertheless but a small assemblage of forms in which the adult is able to resist desiccation, compared with the much larger assemblage in which the power of resistance is confined to the reproductive bodies. This is precisely what we have seen to be the case as regards resistance to extreme cold; indeed, the two phenomena are closely akin, and it is not perhaps surprising that a protective coating to the fertilised ovum suitable for the one purpose should afford adequate protection in the other.

In the vegetable kingdom, many Fungi and Algæ produce highly resistant spores which serve for the perpetuation of the species, and the seeds of the higher aquatic plants can survive a dryness which would kill the parent stock. Among animals, resistant reproductive