

summer line of 70° F. In each of these cases the whole extent of the range is small, being twelve to fourteen degrees.*

In fresh-water streams, the waters, where not frozen, do not sink lower than in the colder oceans, reaching at most but a few degrees below freezing. Yet the extremes are greater than for the ocean; for in the same latitudes which give for the ocean 56° and 70° F. as the limits, the land streams of America range in temperature between 30° and 80° F., and the summer warmth in such a case, may admit of the development of species that would otherwise be excluded from the region.

While then both isocrymal and isothermal lines are of importance on charts illustrating distribution over the continents, the former are pre-eminently important where the geography of marine species is to be studied.

The lines of greatest cold are preferable for marine species to those of summer heat, also because of the fact that the summer range for 30° of latitude either side of the equator is exceedingly small, being but three to four degrees in the Atlantic, and six to eight degrees in the Pacific. The July isothermal for 80° F. passes near the parallel of 30° ; and the extreme heat of the equatorial part of the Atlantic Ocean is rarely above 84° . The difficulty of dividing this space by convenient isothermals with so small a range is obvious.

It is also an objection to using the isotheres, that those towards the equator are much more irregular in course than the isocrymes. That of 80° for July, for example, which is given on our Map from Maury's Chart, has a very flexuous course. Moreover, the spaces between the isotheres fail to correspond as well with actual facts in geographical distribution. The courses of the cold water currents are less evident on such a chart, since the warm waters in summer to a great extent overlies the colder currents.

It is also to be noted that nothing would be gained by making the mean temperature for the year, instead of the extremes, the basis for laying down these lines, as will be inferred from the remarks already made, and from an examination of the chart itself.

The distribution of marine life is a subject of far greater simplicity

* Moreover, the greatest range for all oceans is but 62° of Fahrenheit, the highest being 88° , and the lowest 26° ; while the temperature of the atmosphere of the globe has a range exceeding 150° .