

from normal as read from the map. If this procedure had been absolutely justified all the March-April means for any station would have been reduced to the same figure, that is to say to the normal March-April temperature, and similarly for other stations and the other groups. In practice, of course, such a result was never reached. But the estimates of the normal at every station were arranged in a frequency-diagram, and where there was a high frequency of a certain temperature this was chosen as the normal. It had been intended to give only these figures, but the similarity of these means for districts which were known to have very differ-ent daily ranges of temperature, made quite evident the comparative unimportance of monthly mean temperatures. It was therefore decided to determine the average daily highest and average daily lowest temperatures for each month. For this purpose the records were all computed where possible for ten-year periods, 1885-1894, 1895-1904, 1905-1914. Maps of variation from ten-year normals were then constructed and all places with normals for only one or only two of the ten-year periods were by these maps reduced to a thirty-year system. This resulted in increasing the number of standard stations or stations whose thirty-year normals were known. There remained a large number of stations with short records which did not fall wholly in either ten-year periods. The method of using these stations was in two parts. The period 1913 to 1917 was found to be common to a large number of them. Their mean maxima and minima were therefore calculated for this period as were also the maxima and minima for the standard or thirty-year stations for the same period. The differences from normal of this period 1913-1917 at the standard and thirty-year stations were then set out on maps, 2 maps for each month, one for the maxima and one for the minima. Lines of difference from normal were then drawn upon the maps. The mean maxima and minima for the period 1913 to 1917 were then entered upon the maps and isotherms drawn through them. The isotherms were then added to the isovars (or differences from normal) the isotherms of the maxima to the isovars of the maxima, and, *mutatis mutandis*, the same for the minima. The first points added were those points where the isotherms intersected the isovars, since these were integral numbers and the addition was easiest there. Where large spaces were left without intersections further additions were made. The known data for the thirty-years stations were then added to these additions and new isotherms were drawn in respect to the temperatures represented by the additions. These new isotherms were, then, the normal maxima, or the normal minima as the case might be.

There were still many stations not utilized, those whose data did not fall completely or at all in the period 1913 to 1917. These data were scattered over so many periods that recourse had to be made to the old method of comparison with the nearest standard station. In most of these cases the data were compared month by month with the data of the standard station and where a very large difference from the standard station was found, a difference so large as to be plainly "abnormal," that month's data was rejected. The additional normals so found were added to the maps previously prepared by the addition of "isos," and any changes in the isos made necessary by this additional data were then made.

On all the maps of normal maxima and minima thus made several points were chosen at random, and for such points the mean temperatures were calculated. These mean temperatures were then compared with the normal mean temperatures which had been determined by the first and discarded "frequency method" and the agreement in all cases was found to be good.

Finally it may be said that in our opinion the temperature maps are very reliable and much more so than the precipitation maps. Had there existed complete thirty-year records for all or a majority of the stations all this tedious work would not have been necessary and nothing but the continuance of observations for a like period will determine the accuracy of the work.