these species are undoubtedly derived from the surface of the ripe fruit, their germs are extremely rare, though capable of rapid multiplication when once introduced into the must. W. TRELEASE.

THE VARIATION OF TEMPERATURE IN GERMANY.[1]

DR. HELLMANN has, by this paper, added another to the already large list of climatological contributions which have appeared in the German language. Such papers can and ought to serve as models for the uses to which the data secured in our own country should be put; and although we may have no particular interest in the climatical relations which exist in a certain part of Europe, yet each paper of the nature of the present should be carefully examined as to method, if not for results.

In 1874 there was given in this same publication an article on the climatology of Germany; and this contained the mean temperature for the twenty-five years from 1848 to 1872 of the stations connected with the Prussian meteorological institute. Hellmann has made a new discussion of these temperatures, and has included in this the ten years extending from 1872 to 1882. He has chosen to put the observations into five-day periods; and, using these means in his discussion, he proceeds, by means of combining certain stations, to show what deductions he can draw from the material at his disposal. The twenty-five stations he divides into seven districts, which have recognizably different meteorological conditions; and these stations are quite evenly distributed. Of the twenty-five, only ten were complete in their meteorological data; but the lacking observations have been filled in, and the error of this reduction will not exceed 0.2° C. Hellmann then proceeds to give the missing dates for the various stations. The observations were made at six, two, and ten, with one exception; and he deplores the fact that the lack of good hourly observations does not allow the reduction of these to a true daily mean. The temperatures for the various places are plotted, and curves drawn, on the same page, so that they can be easily compared with each other; and the curves are, in general, similar. The author brings out the fact that "unperiodic weather characteristics are not of a local nature, but occur at the same time over large areas." He also shows that the yearly extremes increase as we proceed inland. With three exceptions, the coldest weather occurred in the five days between Jan. 11 and Jan. 15, but the warmest weather does not occur in all at the same time: this varies from July 17 to July 27. Hellmann goes into a detailed discussion of this difference and the reason. He remarks that Wargentin, in 1760, was the first to use the mean temperature for five-day periods in showing the yearly rate. The temperature-curves of Breslau for ninety-two years and for thirty-five years are compared. An interesting table is given in which the probability is computed that each succeeding five days will be colder from January to August, and warmer from August to January. The periodic return of colder weather is carefully examined and commented on in detail.

At the end of five pages of text we find six pages of tables, containing the five-day means for each of the stations from 1848 to 1882; then comes the graphical representation of this as already mentioned, and next a number of curves showing the relations of the air-pressure, temperature, rain, and probability of succeeding cold at Breslau from 1848 to 1882, and then curves showing the temperature for May and June for Breslau for each year of this same period.

F. W.

[1] *Ueber den jährlichen gang der temperatur in Norddeutschland.* By Dr. G. HELLMANN. From the *Zeitschrift der Königlich preussischen statistischen bureau's, jahrgang* 1883.

LOUIS PASTEUR.

M. Pasteur. Histoire d'un savant, par un ignorant. Paris, *Hetzel*, 1883. 14+392 p. 16°.

IT is the fashion at present to tell the unfinished histories of living men. Noteworthy literary characters have been of late studied, weighed, almost vivisected; and now science pauses to listen to the life-history of one of her living masters. Let us be thankful, however, that we are not yet asked to take the measure of our friend before his death. On the contrary, we are only invited to draw our chairs about the fireside, while a mutual friend discourses to us, half aloud, and half in confidence, about the man and the scholar, Louis Pasteur.

The book whose title stands above has caused much comment on the continent and in England; so much, indeed, that an English translation is already announced, for which, rumor has it, we are indebted to Professor Tyndall, always a warm admirer of Pasteur. Some of the Parisian correspondents of journals published elsewhere have apparently been much impressed by the book, and have written elaborate reviews of it.

The author of this little history modestly professes to be '*un ignorant*,' whose only merit is that he appreciates the master. On laying down the book, we cannot believe that he really deserves his chosen title, for he has certainly mastered the master himself. However, we shall not quarrel with him, especially since he is now known to be the son-in-law of Pasteur, but shall rather thank him for the labor of love and enthusiasm which he has done so well. As has been hinted above, the author has given a familiar account of the life and labors of Pasteur. The book is not a 'critical examination:' it is, rather, a fascinating story. Of course, from the rigid scientific stand-point, it is one-sided and partial. Objectors and ob-