REMARKS ON MAGNETOGRAM-SCALINGS AND INTERNATIONAL MAGNETIC DATA.

BY ADOLF SCHMIDT.

I note that in recently published results of the magnetic observatories under the direction of the United States Coast and Geodetic Survey the procedure has been adopted to tabulate the mean ordinate for Greenwich hourly intervals, centering around the half hour, the same as at Potsdam. The non-cyclic effect may be determined from the adopted procedure just as satisfactorily as from that advanced by Dr. Chree,¹ namely, by obtaining the value at the beginning and end of the day from the two adjacent hourly means. There is no ground for assuming that it is necessary for this purpose to adopt simply the mean of one hourly interval.

As to the adoption of the Greenwich *day* for the daily tabulations, I put less weight upon this matter. To prefer not to use the Greenwich day but instead some day corresponding to the nearest 15-degree meridian time, is natural from practical considerations. If anyone prefers to use, nevertheless, the Greenwich day (not simply the Greenwich hours which is the matter of chief importance), this may always be done; it will only be necessary to divide up the hourly series at some other point. However, I would suggest that at the observatories where the Greenwich day is not generally adopted, those data for which strict simultaneity over the Earth is actually requisite be also computed for the Greenwich day and published along with the other results; this suggestion would entail only a small amount of additional work. Such desired data are:

a. The daily means, which for the study of the "after disturbance," or the so-called "Nachstoerung," must be strictly simultaneous. (I mean that two daily means should be formed, one for the adopted local standard day and one for the Greenwich day.)

b. The data for the diurnal variation from the international five quiet days for each month. The chief value of these data lies therein that they pertain everywhere to the same time-interval. If, on the contrary, the time-interval is different at each station then the mean daily variations as formed for each station cannot be associated with one another. It may happen in fact that at one station a part of the day, according to the adopted local time, would be greatly disturbed. But even if this should not happen to be the case, then the data for the hours according to different standard times would not strictly correspond, since even on various quiet days the diurnal variation is often appreciably,

¹ *Nature*, March 20, 1919.

especially with regard to the amplitude, different. Therefore in the circular (Item No. 2) of the Executive Bureau¹ of November 1, 1913, special emphasis was placed upon this point. In the formation of the monthly means of the diurnal variation from all days, the considerations just stated have less weight. If it does not happen that just at the beginning or end of the adopted local day the course of the diurnal variation is not greatly disturbed, then a shifting of the terminal points by some hours (at the most twelve) does not matter much.

It may also not be superfluous to recall that the "magnetic character numbers" likewise pertain to the Greenwich day.

I do not regard it desirable that everywhere the components X , Y , Z , be registered except at the chief observatories, and even there D and H should also be registered. I should have preferred that at the Seddin Observatory D , H , and Z be registered, had we not continued the registration of these elements at Potsdam. Furthermore, at Seddin there is also installed a D -unifilar, which, to be sure, while only used for occasional registrations, is always available for such purposes.

Experience has shown that no such complicated device for obtaining the mean hourly ordinate as that of Messerschmitt and Lutz, to obtain the desired accuracy is requisite. It is truly remarkable how accurately and readily even the mean ordinate for the entire day can be found with the simple device used at Potsdam.

POTSDAM, November 1, 1919.

EDITORIAL COMMENTS.

We hope that others will be induced to express their opinions in future issues of this Journal, regarding the points raised in the foregoing articles by Messrs. Hazard, Bauer, Chree, and Schmidt. Unless those directly concerned record their opinions when important resolutions are proposed at meetings of international bodies, either at the time, if they happen to be present, or if not, within a reasonable time thereafter in some publication, they would appear to be under moral obligation, at least, to carry out a resolution when passed. Take, for example, the Innsbruck resolution of 1905, here under discussion, there apparently was no dissentient vote recorded at the time, nor do we recall any subsequent printed discussion or criticism, although the Potsdam magnetic observatory proceeded to carry the resolution into effect, beginning with its 1905 observations.

In our "Editorial Review," published in this Journal, vol. XV, attention was called to the various resolutions which had been passed from time to time by the Magnetic Commission of the International Meteorological Committee. On page 197 it was suggested "that each worker in terrestrial magnetism or atmospheric electricity determine for himself just how many of these resolutions he has himself heeded in the past or is heeding now, and if there are any he is not carrying out, let him fix the cause in his own individual case."

Unless more effective means are found than in the past to put into execution matters resolved upon and unless greater readiness is shown in future to follow such resolutions, after ample opportunity has been offered for individual expression of opinion, those responsible for the conduct of magnetic and electric work necessarily lay themselves open to valid criticism.

¹ Magnetic Commission of International Meteorological Committee.