

Academy, on "The Weather Bureau and its work," on the evening of February 21, illustrating his remarks by means of lantern slides.

Mr. J. Warren Smith, Section Director, Columbus, Ohio, visited the Farmers' Institute at Cridersville, Ohio, on February 28. At the morning session he delivered an address on "The work of the United States Weather Bureau and its relation to agriculture," in which he briefly outlined the general circulation of the atmosphere, the characteristics of the various atmospheric disturbances, both primary and secondary, the distinctive features of the three general cloud types, some phases of atmospheric electricity, and a brief history of the development of the observational work of the Weather Bureau.

At the afternoon session he again addressed the Institute, his subject being "Forecasts and warnings—how made, distributed, and utilized." The gradual expansion of the forecast system in the interest of the farmers, how best to profit by temperature forecasts and frost warnings, and methods of protection against frost, were among the subjects discussed.—*H. H. K.*

BACK NUMBERS OF THE REVIEW WANTED.

A correspondent wishes to obtain copies of the MONTHLY WEATHER REVIEW for February, 1884, and September, 1885, to complete his file. Volumes I to XIV, inclusive, and Volume XV, No. 2, are also desired to complete a set for a scientific library. Any one having these Reviews to dispose of will confer a favor by informing the Editor.

HOURLY TEMPERATURES FOR BALTIMORE, MD.

In the report for January, 1902, of the Maryland and Delaware section of the Climate and Crop Service, the Director, Dr. Oliver L. Fassig, states that a thermograph has been in use at the Baltimore office of the United States Weather Bureau since the first of January, 1893. From the record sheets of this instrument the average hourly values of temperature for each month have been computed for the nine years from 1893 to 1901. In the accompanying diagram, fig. 1, these values are graphically represented for the months of January, April, July, and October, and for the year as derived from the twelve monthly values. According to customary nomenclature the average temperature of any month is derived from the 24 hourly averages; we find for each month the following agreement between the averages for nine years of daily maximum and minimum temperatures, and of the 24 hourly observations:

January $\frac{\text{max.} + \text{min.}}{2}$ — monthly average = + 0.3°

April " " " " = + 0.0°

July " " " " = - 0.1°

October " " " " = + 0.4°

The difference between the averages of the 8 a. m. and 8 p. m. temperatures and the monthly averages are as follows:

January $\frac{8 \text{ a. m.} + 8 \text{ p. m.}}{2}$ — monthly averages = - 1.1°

April " " " " = - 0.8°

July " " " " = - 0.7°

October " " " " = - 1.6°

The mean annual temperature for each hour for the nine years of record is given in the following table:

	1	2	3	4	5	6	7	8	9	10	11	12	Average.
A. M.	51.8	51.1	50.5	50.0	49.5	49.4	50.1	51.7	53.6	55.6	57.4	59.0	55.0
P. M.	60.1	60.9	61.3	61.1	60.2	59.0	57.6	56.3	53.2	54.2	53.3	52.5	

The periodic daily amplitude in temperature is the difference between the highest and lowest hourly means. The aperiodic daily amplitude is the difference between the means of the maximum and the minimum temperatures. The latter is always the larger, because the extremes of temperature rarely occur at the moment an hourly reading is taken.

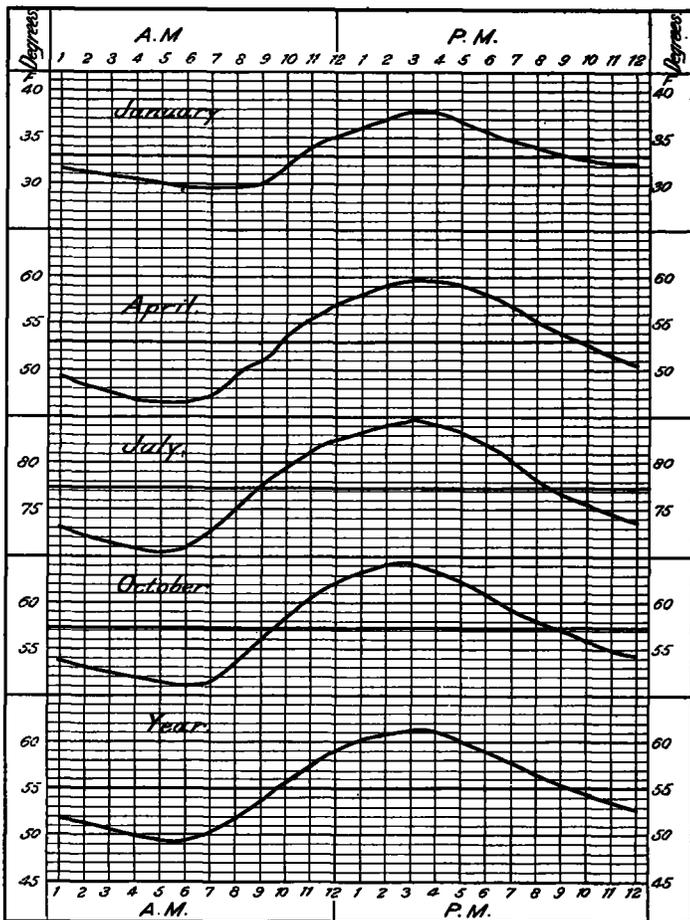


FIG. 1.—Average hourly temperature curves for Baltimore, Md., (1893-1901).

The following table shows the hours of occurrence of the periodic maximum, minimum, and mean temperatures for the different months and for the year.

Month.	Maxi- mum. P. M.	Mini- mum. A. M.	Mean.	
			A. M.	P. M.
January	3	7	11	10
February	3	7	11	10
March	3	6	10	10
April	3	6	10	10
May	3	5	9	9
June	3	5	9	9
July	3	5	9	9
August	3	5	9	9
September	3	6	9	9
October	3	6	10	9
November	3	7	10	9
December	3	7	10	9
Year	3	6	10	9

H. H. K.

METEOROLOGY AND THE SCHOOLS.

In his Report to the Secretary of Agriculture for the year ending June 30, 1901, the Chief of the Weather Bureau referred to the increasing demand for lectures and instructions by Weather Bureau officials before schools and colleges. That meteorology can be made an interesting study for the younger pupils as well as for the more advanced, is demon-

strated by the following extract from the Stevens Point Journal of January 25, 1902, descriptive of a geographical display at the Wisconsin State Normal School at that place:

There is in the geography room at the normal the most pleasing and instructive exhibition ever prepared by the school in that line. The work has been done by the students through Miss De Riemer's suggestions. Miss De Riemer also furnished considerable material such as is not easily procured. A large part of the exhibit consists of pictures showing scenery, industries, cloud types, and racial characteristics.

Suspended from the ceiling is the model of a kite such as is used by the United States weather service for scientific purposes. A large number of very excellent maps are on exhibition, showing a variety of physical features. That which is most in evidence is a scrap book showing what a wealth of information may be put together in such form. The number and variety of the flags flying indicate all sorts of weather that the Bureau is able to provide.

In regard to the meteorological features of the display, Miss Alice De Riemer writes as follows:

In the meteorological corner we had weather maps, charts, many beautiful cloud and fog views, forms of snow crystals, models of weather vanes, rain gage, and anemometer, made by the students, with descriptions and cuts which I had collected. Indeed, it was a miniature exposition, and such a revelation to many of these young people who have had such limited opportunities.

Another time I plan to have several of the students give short talks, during certain hours, describing certain features of the several exhibits. However, our first attempt has been a grand success. All the city teachers were in to-day, and I have just had a communication from a superintendent in one of the adjoining towns asking for the privilege of bringing some of his teachers over to see it.

Miss De Riemer is to be congratulated upon the success of her exposition. Its installation and the preparation of the models of instruments were no doubt useful exercises in manual training, and the exhibition itself an excellent object lesson in meteorology. Other teachers will do well to use it as a model.—H. H. K.

PERNTER'S METEOROLOGICAL OPTICS.

The Director of the Central Institute for Meteorology and Terrestrial Magnetism, Prof. Dr. J. M. Pernter, has begun the publication of a work on meteorological optics (for sale by the firm of W. Braumueller of Vienna and Leipsic), which we most heartily commend to the numerous correspondents who write inquiring as to the explanation of the various optical phenomena that are to be observed in the sky. The first chapter of this work gives an account of the apparent curvature of the dome of the sky; of the connection between our estimates of angular altitudes and the true altitudes of objects seen in midheaven, explaining why such estimates differ in the presence of sunshine and moonshine, and why objects of a circular outline, such as halos, appear distorted into egg-shaped ovals. Professor Pernter has lectured and written frequently for twenty years past on this topic and the explanations of halos, parhelia, red sunsets, and other phenomena that will be given in another part of his volume will undoubtedly make available to us all that is known on the subject and all that is to be found in the very widely scattered literature. The Editor will occasionally translate portions of this volume for the benefit of the readers of the Review, but those who are at all familiar with German should possess the original.—C. A.

SECOND MEXICAN CONGRESS OF METEOROLOGY.

The Second National Meteorological Congress convened by the Scientific Society Antonio Alzate, in the City of Mexico, December 17-20, 1901, has published a short report from which we perceive that there is established a permanent committee of the International Meteorological Congress which prescribes the general character of these congresses as to membership and communications. The annual dues are \$5, and the president of the committee is Señor Prof. Mariano

Leal, Director of the Secondary School, Leon, Guanajuato, Mexico. A preliminary program of this congress will be found in the MONTHLY WEATHER REVIEW, November, 1901, page 512. About fifty members were present. Following the reading of papers, as announced in the preliminary program, corresponding resolutions were formulated and adopted expressing the opinions and wishes of the society. Among these we find under the heading "The prediction of the weather;" three relating to telegraphic work, a fourth urging the increase of stations for temperature and rainfall, a fifth urging the prediction of local weather for short periods, sixth, the study of methods of prediction for long periods, and, finally, that the local weather predictions be announced to the public by means of the signals used in the United States.

Under the heading of "Resolutions relative to the study of storms," the congress appointed a committee to collect data relative to the storms in Mexico and report to the next congress.

Under the heading of "Resolutions relative to self-registering apparatus" the congress recommends: (1) that important observatories constituting the centers of sectional systems of stations be provided with self-registers; (2) that the equipment for each station include thermograph, barograph, hygrograph, pluviograph, and anemograph; (3) said observatories publish the hourly values deduced from these curves in the "Annals of Mexican meteorology;" (4) that the permanent committee distribute instructions as to the use of these instruments.

Under the heading of "Resolutions relative to the applications of climatology to agriculture" the congress recommended: (1) that observations be made on the relation between rainfall and the superficial or subterranean deposits depending thereon within the national territory; (2) the coordination of rainfall with hygrometry both superficial and subterranean; (3) the appointment of a special commission to correspond with the government on these matters; (4) that the regulation of currents and deposits in rivers and lakes is necessary for the improvement of the public health and the preservation of the forests; (5) in order that these beneficial results may be attained, the congress recognizes the necessity of expedition in public works and legislation; (6) that meteorological observatories, when appropriately located, study (a) phenology, (b) actinometry, (c) the appearance of injurious insects, animals, fungi, and vegetables, (d) the prediction of hailstorms; (7) that the efforts being made in Europe to prevent hail by the firing of cannon be studied.

With reference to the thermometer exposure the congress appointed a committee to make a comparative study of the exposures used in Russia, France, and England, and of the aspiration thermometer of Assmann.

With reference to the dissemination of meteorological knowledge the congress recommended to the minister of public instruction and other authorities (1) that elementary meteorology be introduced into the primary schools; (2) that each school have a collection of instruments, and that the scholars in the last year of the course periodically assist in maintaining the station record; (3) that the meteorological bulletins be distributed freely, or at a very moderate price; (4) that there be a meteorological committee for each locality; (5) that the directors of the observatories be requested to publish promptly monthly summaries of local phenomena, especially rainfall; (6) that there be monthly public conferences relative to meteorology at educational centers and in scientific societies; (7) that whenever interesting meteorological phenomenon occur the directors or professor of physics explain them scientifically in the public press and seek to destroy popular prejudices and absurd theories; (8) that there be formed a general association of all the meteorologists of the republic to be known as the national association and having the per-