the air at different heights both in anticyclones and cyclones, as derived from the observations of cloud movements at the Blue Hill Observatory. This is reproduced from the Beiträge zur Physik der freien Atmosphäre, Band II, Heft 2, 1906, being

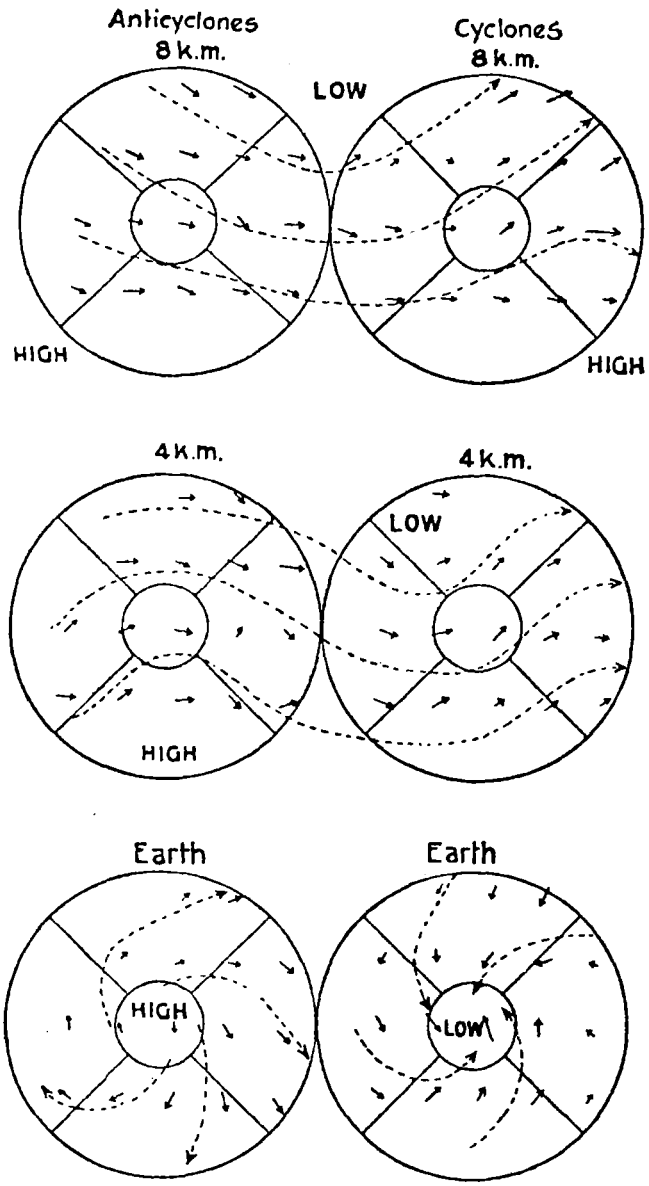

FIG. 3.—Movement of the air at different heights in anticyclones and cyclones.

slightly modified from the original diagram published in the Annals of the Astronomical Observatory of Harvard College, Vol. XXX, Part iv, 1896.

BRIGHT METEORS.

Many observers and correspondents of the Weather Bureau have been in the habit of sending us observations of bright meteors, but the observations have not been utilized as completely as is desirable.

The special interest meteors have for the meteorologist consists in the fact that their visibility, due to the heat generated as they pass thru the atmosphere, demonstrates the existence of gases at great heights about which we otherwise have no information whatever; and it has always been hoped that the visible paths of meteors and the behavior of the trains that are often left behind them may tell us much about the upper atmosphere.

We are happy to state that, by permission of Prof. Henry A. Peck, the astronomer at the University of Syracuse, all good observations of meteors received by us will hereafter be forwarded to him, who will make the necessary computations and tell us whatever may be learned relative to their orbits.

Every observer who reports a meteor is requested not to fill up his account with unnecessary verbiage, but state in a simple, straight way, first, *at what exact point in the sky the meteor was* LAST *seen*. This point may be defined either with reference to the stars or the moon or sun; or by horizontal angular bearings and vertical altitudes, such as are measured with engineering instruments; or by reference to certain trees, buildings, or other marks, whose linear distances and altitudes are known, so that angular bearings and altitudes may be calculated. One of the most convenient methods of estimating angular altitudes to the nearest whole degree consists in holding a graduated yardstick vertically at arm's length. Record the distance from the eye and the vertical distance on the yardstick above the line drawn from the eye to the horizon, from which the astronomer can easily get some idea of the angular altitude. Having fixt the point of disappearance, then record as nearly as possible the point of appearance, and in fact several points along the path, such as the point where it crost the north-south line and the east-west line, and especially the point where it approached nearest to the zenith. By marking the shadow of a pole or of the corner of a building one may secure a good record of the path of a very bright meteor. Continuous photographic records of meteors are peculiarly desirable.—*C. A.*

INTERNATIONAL AND LOCAL ORGANIZATIONS FOR THE PROMOTION OF SEISMOLOGY.

The German Ambassador at Washington, and the United States Ambassador at Berlin, have officially announced to the Department of State, under date of March 7, that Prof. Luigi Palazzo has accepted and entered upon his duties as vice-president of the permanent committee of the International Seismological Association. The financial agent of this association is the "Aktiengesellschaft für Boden-und Kommunalkredit", at Strassburg, to whom all subscriptions should be paid. The United States is a member of this association, and a small appropriation has been made by Congress for fees and the expense of the delegate. Prof. Harry Fielding Reid, of Johns Hopkins University, is the member of the permanent committee representing the United States.

Two notable steps have been taken during the past year tending to a more definite and permanent organization of seismological interests in the United States. First, as a direct result of the California earthquake, the Seismological Society of America was organized, with headquarters at the University of California, Berkeley. The objects of the society are stated to be:

"For the acquisition and diffusion of knowledge concerning earthquakes and allied phenomena, and to enlist the support of the people and the Government in the attainment of these ends".

Prof. Geo. D. Louderback, of the University of California, is the present secretary. The other officers are:

Board of Directors–1907.

George Davidson, *President*; Andrew C. Lawson, *1st Vice-President*; T. J. J. See, *2d Vice-President*; Alex. G. McAdie, *3d Vice-President*; J. N. LeConte, *Treasurer*; Chas. Burkhalter, W. W. Campbell, C. Derleth, jr., G. K. Gilbert, A. O. Leuschner, J. S. Ricard.

Scientific Committee.

Andrew C. Lawson, *Chairman*; John C. Branner, G. K. Gilbert, C. Derleth, jr., J. N. LeConte, A. G. McAdie, H. F. Reid.

The second important advance was made at the December meeting of the American Association for the Advancement of Science, when, at the instigation of Prof. W. H. Hobbs, of Ann Arbor, Mich., a committee on seismology was appointed. The gentlemen selected, who represent all sections of the country and the more important institutions likely to be engaged in seismological research, are as follows: L. A. Bauer, Carnegie Institution of Washington; W. W. Campbell, Lick Observatory; Major C. E. Dutton, U. S. Army; G. K. Gilbert, U. S. Geological Survey; J. F. Hayford, U. S. Coast and Geodetic Survey; W. H. Hobbs, University of Michigan; L. M. Hoskins, Stanford University; T. A. Jaggar, Massachusetts Institute of Technology; Otto Klotz, Ottawa Observatory, Canada; A. C. Lawson, University of California; C. F. Marvin, U. S. Weather Bureau; W J McGee, St. Louis Public Museum; H. F. Reid, Johns Hopkins University; C. J. Rookwood, jr., Princeton University; and R. S. Tarr, Cornell University. In the preliminary organization of the committee Dr. G. K. Gilbert was chosen chairman and Dr. W. H. Hobbs, secretary.

Some of the objects in view in forming the committee on seismology in America are as follows:

1. To be available for, and to initiate counsel in connection with, legislation which provides for investigation of earthquakes or the means for mitigating their dangers.
2. To bring into harmony all American and Canadian institutions doing seismological work, and to guard against unnecessary duplication of studies.
3. To organize, if thought best, a correlated system of earthquake stations, which should include the outlying possessions and protectorates.
4. To advise regarding the best type or types of seismometers for the correlated stations.
5. To disseminate information regarding construction suited to earthquake districts.
6. To collect data regarding the light as well as the heavy shocks, and to put the results upon record.
7. To start investigations upon large problems of seismology.
8. To advise with some weight of authority when catastrophic earthquakes have wrought national calamity.—*C. F. M.*

THE METEOR OF MARCH 14, 1906, OVER CENTRAL NEW YORK.

By Prof. HENRY A. PECK. Dated Syracuse University, Syracuse, N. Y., May 1, 1907.

About 8 p. m., March 14, 1906, a large meteor past over the western-central part of New York State. Press notices appeared in the majority of the daily papers between Rome and Buffalo. In an attempt to secure more reliable data requests were sent from the Central Office of the Weather Bureau to the officials in charge at Oswego, Ithaca, Syracuse, and Rochester, asking them to send all good accounts of the meteor, together with apparent angular altitudes and bearings. Scattering observations were obtained from the three first named stations. In response to advertisements in the Rochester papers, Mr. L. M. Dey, the local forecaster, was enabled to obtain a large amount of material which has been of great value in roughly outlining the territory over which the meteor was observed, as well as in determining the general character of the phenomenon. A complete list of those who have contributed to secure the following results is here given, the places of observation being arranged in order of longitude west of Greenwich:

Henry B. French, Rome.
J. W. Blood, Rome.
L. W. Griswold, Oneida.
H. A. Peck, Syracuse.
Jennie Whaley, Oswego.
Olive E. Templeton, Oswego.
F. R. Monk, Fair Haven.
S. D. Colgate, Townsendville.
Benjamin Christian, Wolcott.
Robert J. Purdy, Ovid.
Floyd Thomas, North Rose.
Louis H. Albright, Newark.
J. A. Rose, Lyons.
C. J. Andrews, Sodus Center.
Fred Webler, Sodus Center.
Professor LeRoy, Penn Yan.
Olive R. Tobey, Penn Yan.
V. C. Washburn, Clifton Springs.
F. W. Clark, Williamson.
Rev. J. Menlendyke, Palmyra.
J. Van Arsdale, Canandaigua.
Mrs. Addie Eddy, Middlesex.
C. D. Gilbert, Despatch.
B. A. Plimpton, Victor.
Mrs. Jesse A. Wheeler, Holcomb.
Benjamin G. Wedd, Mortimer.
William B. Mason, Lima.
Jesse L. Vanderpool, Rochester.
L. M. Dey, Rochester.
F. L. Hunt, Rochester.
Kate E. Collins, Rochester.
Julia F. White, Rochester.
H. B. McEnbee, Rochester.
Mrs. T. Tewilliger, Rochester.
Mrs. F. B. Albro, Rochester.
Mrs. Chas. T. Axelson, Rochester.
Mrs. George Heberling, Rochester.
Adaline I. Jones, Rochester.
Katherine L. Hoyt, Rochester.
Mrs. G. T. Le Boutillier, Rochester.
F. T. Ellison, Rochester.
S. F. Gould, Rochester.
A. E. Benjamin, Rochester.
Edgar Shantz, Rochester.
C. J. Trumeter, Rochester.
Louis P. Hof, Rochester.
F. W. Green, Rochester.
H. H. Butler, Rochester.
Frank J. Schantz, Rochester.
Milton J. Tripp, Rochester.
Mrs. H. H. Turner, Rochester.
B. L. Pope, Rochester.
Leman Gibbs, Livonia Center.
George V. Witzel, Coldwater.
F. Hanford, Scottsville.
W. J. Stocum, Adams Basin.
John Denton, M. D., Retsof.
Ames Belden, Albion.
Georglanna A. Nichol, Medina.
Mrs. Thomas R. Griffith, Aurora.
Thomas Rooney, Lockport.
F. A. Keltinger, M. D., Lockport.

When it is remembered that the air-line distance from Rome to Lockport is over 160 miles, it is evident that the meteor was a remarkable object from a popular as well as from a scientific standpoint.

The apparent path of the meteor thru the atmosphere began about 4 miles to the southeast of Geneva on the eastern shore of Seneca Lake, at an altitude of 70 miles above the surface of the earth. The time of flight was about five or six seconds, and it disappeared over Lake Ontario northeast of Manitou Point, about 8 miles from the nearest land. At first it appeared as a rosy red star of not inconsiderable brightness, but in the latter part of its flight various observers estimated its size as from that of quarter to the full size of the moon. The light cast at places near its path was evidently as strong as that of the moon, or, as one observer says, "the beam of a strong searchlight". Some doubt might be cast on its having been one large, solid body from the fact that reports from places widely apart state that fragments seemed to leave the main mass and pursue separate paths. As suggested by Mr. L. M. Dey, official in charge of the Weather Bureau office at Rochester, this may be the cause of some of the conflicting accounts as to its course, some observers having seen fragments of the parent body. A trail that persisted for several seconds followed the flight. A number of observers report that it made a sound as of some heavy body rushing thru the air. After passing over Lake Ontario it exploded twice, the detonation being heard 40 miles, while within 25 miles the concussion was so great as to cause a slight shaking of houses. The sound at Rochester and vicinity is compared to the sound of distant cannon or blasting, or to the rolling of thunder.[1]

To obtain the orbit of such an object, using as the basis the conflicting observations and estimates of persons who, for the most part, are unskilled in such work, is no easy task. It must be remembered in the present instance that the greater share of the accounts were not compiled from notes made at the time of observation, but were compiled from memory about three weeks later. Under such circumstances the observer will often unconsciously and in perfect good faith prolong the true path in either direction.

Our work falls into two divisions. We must first find the most probable path thru the atmosphere, assuming that path as a straight line, from which, in any event, it can not deviate very materially during the short time of flight. This straight line is fixt if we know its end, its length, and its direction. The known time of flight furnishes the velocity. The second

[1] A great noise is sometimes heard shortly after a large meteor passes the observer, and as meteors are frequently seen to break into two or more portions such noises are spoken of as concussions or explosions, especially because they are so loud as to resemble cannonading. However there is generally no explosion, properly so called, even when the noises are very loud; and the exact mechanism by which the noises are produced is worthy of further study.—*C. A.*