mm., both numbers fortunately are very convenient and suitable for their respective purposes.

2. For the case of kilometers per hour, it is plain that in the same manner as in (1) the equation of velocity becomes:

$$V \text{ in kilometers per hour} = \frac{3{,}600\, m}{t\, h}$$

and that here again, as before, $V=m$, when t is 30 seconds and h is 120 mm.

3. Finally, for the third case of meters per second the general equation of velocity becomes for a cloud 1,000 meters high:

$$V \text{ in meters per second} = \frac{m}{t\, h}\, 1{,}000$$

The best that can be done in this case, still retaining $h=$ 120 mm. is to make $t=25$ seconds, whereupon:

$$V = \frac{m}{3{,}000}\, 1{,}000; \text{ or} = V\frac{m}{3}$$

(6). We now come to the consideration of the measurement of cloud heights. This is really a matter of great difficulty, and the present discussion will be confined to explaining how measurements of this sort can be somewhat imperfectly made with the nephoscope. For this purpose two stations may be established within sight of each other and at a known distance apart. A mile or more is necessary for high clouds, but for nephoscopic observations upon clouds of moderate elevations a less distance between stations may be fairly satisfactory. The zero points of the graduated rims of the nephoscopes had best be set exactly on the line between the two stations, although this is not necessary if the azimuth of this line is taken into account.

The observations require that the observers at the two stations shall first decide upon some particular cloud, or spot on the cloud, to be measured. Telephonic communication is quite indispensable for this purpose. When a mutual identification of a spot has been reached each observer measures with his nephoscope the altitude and azimuth of the spot at the same moment of time. The mathematical computation by which the height of the cloud is deduced from such observations is rather complex and need not be given. The height of the cloud may be determined in a mechanical way, as follows: Lay off a line on the floor having a length corresponding to the distance between the stations. A scale of 1 inch to 100 feet will be convenient. Tack strings to the floor, one exactly at each end of the line. Stretch these strings up through the air so that the angular altitude above the floor corresponds to the altitudes obtained from the observations of the two nephoscopes, respectively. The threads must also make the same horizontal angles with the base line as found from the observation of the azimuth of the cloud. If the two observers sighted at the same point of the cloud and the strings were nicely adjusted, they should intersect at a point above the floor. This point represents the cloud and its vertical distance above the floor, measured on the same scale as the base line, for example, 1 inch equals 100 feet is the desired height of the cloud. Generally, the strings will fail to intersect, which means that the two observers were not looking at the same point. If the discrepancy is not too great, the height of the cloud may be measured from a point midway between the strings where they are nearest together.

The averages of several observations are necessary to get fairly good altitudes. Generally, however, it is necessary to employ theodolites in order that the angles may be measured with greater accuracy and photography is called in to obviate the difficulty of fixing upon a definite point of observation.

NOTES BY THE EDITOR.

THE NEW ENGLAND METEOROLOGICAL SOCIETY.

The Editor has received from Prof. Wm. M. Davis, Secretary of the New England Meteorological Society, a notice stating that the thirty-sixth regular meeting of the Society was held at Boston on April 25, 1896, at which, after reading a number of excellent papers by Rotch, Fergusson, Clayton, and Very, the question of the dissolution of the Society was considered. The Secretary reported that—

Thirty-nine members of the Society, not present at this meeting, had sent in written ballots, 32 being in favor of dissolution, and 7 in the negative; a number of members not voting. It was then moved:

1. That when this meeting adjourns, it adjourns *sine die*, and that the Society be thereby dissolved. This motion was carried by 8 affirmative againt no negative votes.

The following recommendations of the Council were then voted:

2. That notice of the votes of this meetlng be sent to all members of the Society.

3. That any unexpended balance remaining in the treasury of the Society, after the payment of its obligations, be spent under the direction of Messrs. W. H. Niles, W. M. Davis, and R. de C. Ward, for some meteorological purpose.

4. That notice of the dissolution of the Society be forwarded for publication in the U. S. MONTHLY WEATHER REVIEW, New England Climate and Crop Bulletin, American Journal of Science, Science, Nature, and the Meteorologische Zeitschrift.

5. That any undistributed copies of the Society's investigations be presented to the Astronomical Observatory of Harvard College, to be disposed of by gift, exchange, or otherwise, as shall seem most advisable to the Director of that Observatory.

6. That any publication hereafter received, addressed to the Society, shall be presented to the library of the same Observatory.

On motion, the Society adjourned *sine die*.

Almost simultaneously with the above notice comes the news that the American Meteorological Journal will be discontinued with the completion of Volume XII. We have here two events that mark an unfortunate epoch in the history of meteorology in America.

The support of the Journal and the Society has, perhaps, fallen too heavily upon a few persons to whom all must be grateful for their faithful work. The discontinuance of both leaves a gap that ought to be promptly filled. Meanwhile, the weekly journal, Science, has, to a limited extent, opened its columns to communications on meteorological subjects, and those meteorological observers who desire to extend their knowledge of what is going on in this branch of science will have to consult that periodical, as it is the only one in America that now gives prominence to this subject.

MEXICAN CLIMATOLOGICAL DATA.

In order to extend the isobars and isotherms southward so that the students of weather, climate and storms in the United States may properly appreciate the influence of the conditions that prevail over Mexico the Editor has compiled the following table from the Boletina Mensual for January, 1896, as published by the Central Meteorological Observatory of Mexico. The data there given in metric measure have, of course, been converted into English measures. The barometeric means are as given by mercurial barometers under the influence of local gravity and therefore need reductions to standard gravity, depending upon both latitude and altitude; the influence of the latter is rather uncertain, but that of the former is well known. For the sake of conformity with the other data published in this REVIEW these corrections for local gravity have not been applied.

Mexican data for January, 1896.

Stations.	Altitude.	Mean barometer.	Mean temperature.	Relative humidity.	Precipitation.	Prevailing direction.	
						Wind.	Cloud.
	Feet.	*Inch.*	° *F.*	%	*Inch.*		
Aguascalientes	6,112.3	.....	.....	.....	.....	.....	.....
Campeche	40.4	.....	.....	.....	.....	.....	.....
Colima (Seminario)	.....	.....	71.4	69	.....	.....	sw.
Colima	1,291.7	.....	73.8	.....	.....	.....	.....
Culiacan	112.2	29.84	68.0	67	0.76	.....	.....
Guadalajara (H. de B.)	5,141.2	25.32	57.6	82	0.08	w.	.....
Guadalajara (Obs. d. Est.)	5,186.4	.....	.....	.....	.....	.....	.....
Guanajuato	6,761.3	23.69	57.6	48	0.01	wsw.	sw.
Jalapa	4,757.3	25.58	58.6	.....	0.94	nnw.	.....
Lagos (Liceo Guerra)	.....	24.16	56.8	48	0.06	sw.	sw.
Leon	5,901.0	24.31	57.0	43	0.11	ssw.	sw.
Mazatlan	24.6	29.98	70.0	78	1.75	nw.	sw.
Merida	50.2	30.03	70.7	70	0.01	ne.	n.
Mexico (Obs. Cent.)	7,488.7	23.08	55.0	54	0.02	nw.	sw.
Mexico (E. N. de S.)	7,480.5	23.12	55.4	61	0.02	.....	.....
Morelia (Seminario)	6,401.0	23.98	55.6	62	0.43	ssw.	sw.
Oaxaca	5,164.4	25.10	64.6	54	0.00	w.	e.
Pabellon	6,312.4	.....	.....	.....	.....	.....	.....
Pachuca	7,956.3	22.63	53.8	71	0.00	nne.	ne.
Progreso	.....	.....	.....	.....	.....	.....	.....
Puebla (Col. d'Est.)	7,118.2	.....	.....	.....	.....	.....	.....
Puebla (Col. Cat.)	7,112.0	23.39	57.2	52	T.	nne.	sse.
Queretaro	6,069.7	24.20	57.2	50	0.20	e.	.....
Real del Monte (E. de H.)	9,095.2	.....	.....	.....	.....	sw.	.....
Saltillo (Col. S. Juan)	5,376.7	24.89	56.5	58	0.12	sw.	.....
San Luis Potosi	6,201.9	.....	.....	.....	.....	.....	.....
Silao	6,063.1	.....	.....	.....	.....	.....	.....
Tacambaro	.....	.....	.....	.....	.....	.....	.....
Tacubaya (Obs. Nac.)	7,630.2	22.98	54.3	56	T.	nw.	.....
Tampico (Hos. Mil.)	.....	.....	.....	.....	.....	.....	.....
Tehuacan	5,152.8	.....	.....	.....	.....	.....	.....
Toluca	8,612.4	21.91	49.5	55	0.00	wsw.	sw.
Trejo (Hac. Silao, Gto.)	.....	.....	.....	.....	.....	.....	.....
Trinidad (near Leon)	6,010.1	.....	.....	.....	.....	.....	.....
Veracruz	47.9	.....	.....	.....	.....	.....	.....
Zacatecas	8,015.2	22.61	53.6	47	0.27	sw.	.....
Zapotlan (Seminario)	5,124.8	25.08	62.6	.....	2.00	se.	sw.

COLD AIR IN LOW LANDS.

Mrs. L. H. Grenewald, the highly-esteemed voluntary observer at York, Pa., calls attention to the great discrepancy between the minimum temperatures occasionally observed at Harrisburg, Philadelphia, and York, of which the following are illustrations:

The morning minima of March 13, 1896, were as follows: Pittsburg, +8°; Philadelphia, +16°; Harrisburg, +8°; York, —6°; Washington, +14°.

The minimum at York was the lowest recorded since February 3, 1895. The temperature remained below freezing all day, but as the wind was nearly calm this extreme sensible temperature was less apparent. The maximum temperature on the same day at York was +29° and the mean temperature 12°. The sky was cloudless and the humidity about 70 per cent. A heavy snowstorm had occurred on the 11th and 12th and the ground was, therefore, covered with snow throughout the neighborhood.

The minima of the 14th were: Pittsburg, +14°; Philadelphia, +13°; Harrisburg, +6°; York, —6.2°; Washington, +14°.

On this day, in the morning, the sky was clear and the wind at 8 a. m. a light west at Philadelphia, but at York it was still calm with a clear sky. York is about 25 miles southeast of Harrisburg, 50 north of Baltimore, and 80 west of Philadelphia. York is less than 500 feet above sea level, and the hills of 1,000 feet or more in elevation that form the eastern border of the Appalachians are distant 25 miles to the north and northwest, 60 miles to the west and 40 miles to the southwest. During still nights a gentle flow of wind down the Susquehanna Valley prevails in the neighborhood of Harrisburg while a calm prevails in the neighborhood of York. The weather maps of the 13th and 14th show that after the storm of the 12th had passed rapidly northeastward along the middle Atlantic Coast there was a slight inflow of cold, dry air over Pennsylvania so that the isotherm of 20° passing northeastward through Harrisburg at 8. m. of the 12th moved a little farther south and east. On the morning of the 13th clear weather prevailed over Pennsylvania and neighboring States, with light northwest winds and rising pressure. On the 14th, 8 a. m., light winds from the northwest or southwest prevailed, the pressure had risen to 30.60 or 30.68 and the region between Lynchburg and Harrisburg was approximately the center of the area of high pressure.

It is a matter of common observation that within the areas of highest pressure there usually are not only clear sky, calms, or light winds and low temperatures, but many limited localities within which temperatures occur that are abnormally low. The locations of these cold spots depend upon combinations of several favorable circumstances, namely: (1) The atmosphere of this region is in a general state of descending motion, the descent is very slow and is due to the general coldness of the air, but specific portions of the atmosphere may be colder than others so that here and there may occur downpours of cold air from above. (2) When this air reaches the ground it still continues to cool if the ground is cold as is, of course, the case at nighttime, but if the ground is warm, as in the daytime, the air may become warmed and rise up by its buoyancy and make room for other colder air to come down; thus in the daytime the air near the ground is kept cool notwithstanding the sunshine while at nighttime it grows colder in proportion as the nights are longer and this is peculiarly true when the ground is covered with a layer of snow, as this cuts off all conduction of heat from below. During the nighttime the only important process at the surface of the ground is that of the radiation of heat. Heat is sent off in all directions through the air above us into the space beyond in a manner precisely similar to the radiation of light and just as light passes through clear air with only a slight absorption so also with heat. The air in contact with the soil may receive heat from it if the soil be warmer, but will give up heat to it if the soil be colder, provided it comes in contact with it. This process of conduction of heat from the air to the soil, to the foliage of plants and every other solid object goes on especially during clear cold nights, because on those occasions the heat received by solid objects can be radiated directly back into space. Such solids are, therefore, the mediums by which heat is taken from the air and then radiated through the air. The dust floating in the atmosphere and the globules of water forming clouds perform a similar office. If now in any quiet valley the air has only the gentlest perceptible motion, or if on an open plain the air rests stagnant all night, so that no great quantity of fresh heat is brought to the soil and foliage these latter will continue radiating and cooling as rapidly as the natures of the surfaces allow and will reach a minimum temperature that will depend largely upon the clearness of the sky, the amount of wind, their individual exposure to the sky, and the nature of their individual surfaces.

The cooling by radiation on a still, clear night can attain a very surprising amount. In India it has for ages been the custom to manufacture artificial ice by exposing water in pans, at nighttime, when the ordinary temperature of the air is far above freezing. Anyone may experimentally convince himself of the low temperatures produced by radiation if he will lay a thermometer on the top of several thicknesses of cotton wool or down or fur and set this arrangement under the open sky on a clear, still night. It is best to lay this preparation in a pan or shallow box so that a layer of cool air may rest quiet just above the thermometer. Under these conditions the morning minimum will be much lower than if the minimum thermometer had merely been fastened up against the inside of an ordinary shelter. Such a thermometer is one form of "radiation thermometer," and the temperature thus obtained is not the general temperature of the air, and it may not even be the general temperature of the air within the shallow box or the temperature of the upper