This is related to have occurred while Sir Isaac was living at Woolsthorpe and attending the public school at Grantham, probably in the year 1655, when he was about thirteen years old. A second paragraph occurs on page 16 of the same volume, which reads as follows:

It is about this time (1657) also that he seems to have paid some attention to the subject of the resistance of fluids, to which his experiments with water wheels would naturally lead him. Mr. Conduitt (Sir Isaac's nephew) apparently on the authority of Mrs. Vincent (an intimate friend of Sir Isaac in his youth) informs us that even when he was occupied with his paper kites he was endeavoring to find out the proper form of a body which would experience the least resistance when moving in a fluid.

This item is apparently copied by Sir David Brewster from the manuscripts collected by Mr. Conduitt before 1729, as material for his own memoir of the great philosopher. The precise wording of the Stukely and Conduitt manuscripts is, I suppose, not followed by Brewster in the paragraphs above quoted.

The above paragraphs are apparently those on which Poggendorff bases the statement made by him on page 659 of his *Geschichte der Physik*, "Even playthings, such for example as the kite, served him not so much as a direct means of recreation, as an opportunity for reflection as to how these could be best constructed in order that the wind should act most powerfully upon them."

The Editor has, unfortunately, not at hand any of the other numerous publications relative to the life of Sir Isaac Newton; but considering the thoroughness of his insight into the play of forces in all manner of cases, we can not doubt but that Sir Isaac arrived at a satisfactory theory of the mechanics of the problem. Nevertheless it still remains true, as Professor Marvin has stated in this connection, that a search for the literature bearing upon the mechanics of the kite in action has proved nearly fruitless, and his own published memoir on the construction of a kite, and another that will soon be published, on the theory of the kite, constitute the first important publications on this subject, and will prepare the way for future progress in the use of this important piece of meteorological apparatus.

The Editor understands that Professor Marvin considers the combinations of balloon and kite and various complicated forms objectionable on the score of efficiency, although they may, sometimes, be necessary in order to overcome special difficulties. The readers of the MONTHLY WEATHER REVIEW will, we are certain, be pleased to hear from any who have made experiments with various forms of kites.

EARLY MEASUREMENTS OF THE VELOCITY OF THE WIND.

We are indebted to Mr. Oliver L. Fassig for an interesting item of history as to early measurements of the velocity and force of the wind. In the September REVIEW, on page 335, we have stated that the simplest measurement of the velocity of the wind is made by observing the speed of light bodies, such as feathers or soap bubbles, carried along by it. Questions of inertia or of the resistance of any heavy object to the force of the wind do not enter into the calculation of these results if the light object remains in the air long enough to attain the same velocity as the wind itself; therefore this method is much more direct and not encumbered with the theoretical difficulties that attend the method described on page 335, as invented in his early youth, by Sir Isaac Newton.

The observation of the velocity of very light floating bodies was made with much care by Derham of England in his determination of the velocity of sound; but earlier than this, and, in fact, the earliest record that the Editor is aware of, is the following, quoted from Poggendorff's *Geschichte der Physik*, p. 123:

The writings of Geronimo Cardeno (born at Pavia, 1501, and died at Rome, 1576) fill not less than ten folio volumes. From a physical point of view the most remarkable of these is his *Opus Novum*, Basil, 1570, although, in general, it contains but little that is new. He speaks therein of the necessity of taking account of the resistance of the medium if one would determine the velocity of movement of a projectile. He furthermore endeavors to apply the beating of the pulse as a means of measuring time. In this way he measured the velocity of the wind, and found that the strongest storm wind blew at the rate of only fifty paces for one pulsation. * * * He also determined the densities of certain bodies, partly by the phenomenon of friction and partly by their resistance to projectiles, and found, for instance, that the air is fifty times lighter than water, a result which he himself, however, considered as inaccurate.

On page 743 Poggendorff says:

The oldest datum as to the velocity of the wind is that which Marriott gives in his treatise on the Movement of Water and Other Fluids (published after his death at Paris, 1686). Therein he states the velocity of the strongest winds at 32 feet per second. But since this velocity is much too small, and he does not state how he found it, therefore it is possible that this figure results from an estimate merely.

Passing over the history of the invention of several forms of anemometers, Poggendorff says:

There are few subjects in physics to whose measurement so many and various instruments have been devised as the strength of the wind. Most of these, however, have been no sooner invented than they were again quickly forgotten. The number of useful measurements of the velocity of the wind is very small and has no relation to the number of anemometers invented. As the oldest of these measurements we must recognize those of the Englishman, Derham. They were made in the year 1705 and published in the Philosophical Transactions in 1708. From the velocity with which the wind carries light objects, such as down, he concluded that a storm wind had a velocity of 50 to 60 English miles per hour, which is evidently too small. Rochow observed 120 English miles, or 24 German miles, as the velocity of a hurricane. (See the Philosophical Transactions, abridged, Vol. V, p. 392.) To this Derham, also, must credit be given in that he first, in the above-mentioned Philosophical Transactions, demonstrated the influence of the wind on the velocity of sound, an influence that the Academy del Cimento denied, and whose demonstration certainly demanded better means of observation than the academy possessed, since the velocity of sound is very great relative to that of the wind.

DERHAM'S OBSERVATIONS ON THE VELOCITY OF THE WIND.

In the London Philosophical Transactions for 1708, Vol. XXVI, occurs the celebrated memoir by Rev. W. Derham on the Motion of Sound. This memoir was written and published in Latin, as being the common language of the philosophers of that day, but about 1875 the late Dr. J. C. Welling, of Washington, had occasion to make a translation of this memoir and allowed the present Editor to have a copy made for preservation in the Library of the Weather Bureau. The determination of the true velocity of sound required Dr. Derham to determine the influence, if any, of the velocity of the wind, about which there was some doubt at that time, in the minds of philosophers. As his determinations of the velocity of the wind have a special interest for meteorologists, and as Derham's whole memoir is an elegant example of experimental work, the Editor takes pleasure in laying before the readers of the REVIEW, the following quotation from the latter part of Dr. Welling's translation, which is fuller than the authorized Hutton's Abridgment:

After, in this way, I had perceived what influence the winds have, both for accelerating and retarding the course of sounds, curiosity led me to inquire into the velocity of the winds themselves. And though the inquiry may be foreign to my subject it will not be wholly ungrateful, as I hope, to curious minds, if I publish in this connection certain observations on this point.

Concerning the velocity of winds.—In order to ascertain how large a space winds may traverse in any given time, I have used, in prosecuting my experiments, certain bodies of the somewhat lighter sort, such as thistle down, light feathers, etc., which seemed better to serve my purpose than the instrument which is described for us in the Philosophical Transactions, No. 24; or even that other more available one, recalling the figure of a mill with wings attached, invented, unless I mistake, by our most acute friend, the late Dr. Hook.

From very many experiments which I have made, with the aid of the lighter sort of bodies, when the winds were blowing with different degrees of force, I have found that the most violent wind traverses scarcely 60 miles an hour. For example, on the 11th of August, 1705, the violence of the wind excited such a tempest that it almost overturned the windmill itself near the spot where I made my observations. [The different degrees of the force of the winds, as has just been seen, I have for the most part noted by these figures: 0, 1, 2, 3, 4, 5, 6, up to 10, 15, or still higher degrees.] Now I have estimated that the force of the above indicated wind answers to about 12 or 14 of these degrees. And from very many reiterated experiments I have concluded that that tornado traversed about 33 feet in a half second, or 45 miles in an hour; hence I gather that the fleetest and most tempestuous winds (that violent wind which raged in the month of November, 1703, not being excepted) do not traverse more than 50 or 60 miles an hour.

After we have measured the velocity of the rapid winds, it is not difficult to conjecture what may be the velocity of less rapid ones; for I have also marked the course of these, and from various experiments I have convinced myself that some of them accomplished 15, some 13, others many less miles per hour; while some are propagated with such a slow motion that they move scarcely a single mile an hour. Moreover, other winds are so sluggish that one may easily outstrip them while making a journey on horseback or on foot. This fact is apparent to our senses, for when we arrest our steps we perceive a soft breeze gently fanning us, but if we advance with it we feel none at all; while if we quicken our pace instead of a breeze accompanying us and blowing in the same direction with our movement, we plainly feel the air resisting us, aud blowing full in our faces. Likewise when the atmosphere is entirely quiescent and stagnant, if we chance to be walking or riding on horseback, we then perceive a gentle breeze pressing against us, with such degrees of force, in fact, as correspond to the rates of our own motion. And a breeze of wind or current of air is borne with the same rate of motion or velocity when it presses against us with an equal impetus as we stand still, or linger in our track.

From these observations about the velocity of winds very many things, not without utility, might be noted, but especially might we assign in view of them, one reason why the mercury rises and falls for such a long time before clear weather or rain sets in.

But I will omit these considerations as being foreign to my purpose, and this only will I observe as to sounds, to wit, that while their motion is accelerated by wind it is plain that those parts of the atmosphere by which sounds are impressed or propagated are not the same as those from which winds are blown, but certain other more ethereal and volatile parts, as one may suppose. For the fleetest winds do not pass through more than 60 miles in an hour, but sounds travel more than seven hundred thousand paces, or 778 miles in the same time.

But if it be objected that winds do accelerate or retard sounds it is to be answered that this does not only proceed from the current or tendency of the windy particles alone, but rather from the conjoint and cooperating motion of all the particles of the atmosphere, both the thicker and the ethereal. If the direction of this course or motion favors the waves of sound it is altogether in accordance with probability that the impulse of sounds should be accelerated by this cause, but if the direction is adverse that, the impulse should be retarded.

Having shown that the velocity of sound under ordinary conditions of the atmosphere in England averages 1,142 feet per second, Derham enumerates many practical applications of this knowledge, and concludes: "Finally, in this way the height of thunderclouds and the distance of the thunder and lightning itself may be easily ascertained."

THE CHINOOK IN OREGON.

The morning map of Thursday, December 3, at Portland, Oreg., contains the following predictions by B. S. Pague, Local Forecast Official:

Chinook winds are prevailing over Washington, Oregon, Idaho, and Montana this morning. The temperature is from 46° to 50°, west of the Cascades, and from 24° to 22° to the east of them.

The storm area extends from the ocean off northwestern Washington over British Columbia and northern Washington. An area of high pressure is central about Salt Lake, and the flow of air from the high to the low causes the chinook winds by dynamic heating.

Chinook winds are not warm winds from the ocean, but air made warm by the compression produced by the flow from the mountain heights of Nevada, Utah, and southern Idaho, to the lower lands extending north-northeastward and northwestward to the area of low barometric pressure. The map this morning shows the distribution of atmospheric pressure necessary to produce chinook winds over the northwestern portions of the United States. These winds are most welcome for they will clear the snow blockades which have closed the railroads and will remove the snow from the stock ranges.

Warm chinook weather will prevail for the next thirty-six hours.

The chinook prevailing this (Thursday) morning was indicated in the Tuesday morning's report, and was telegraphed out Wednesday morning.

In the above paragraph Mr. Pague has used the word chinook in its ordinary meteorological acceptation. It would be interesting to learn whether the popular usage in Oregon, Washington, and British Columbia agrees with that of the meteorologist.

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 translated the following tables from the current numbers of the *Boletin Mensual* as published by the Central Meteorological Observatory of Mexico. The data there given in metric measures have been converted into English measures. The barometric 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. One additional station, Topolobampo, is published at the end of Table II.

Mexican data for November, 1896.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	Inch.	° F.	° F.	° F.	%	Inch.		
Campeche	......	......	......	......	......	......	......	......	......
Colima (Seminario)	1,600	28.26	90.5	57.7	76.3	70	0.39	wsw.	s. & w.
Colima	......	......	......	......	77.7	......	......	......	......
Guadalajara (O. d. E.)	5,141	25.00	77.7	39.4	64.8	80	3.44	se.	w. & nw.
Guanajuato	6,761	23.70	79.2	49.3	62.2	58	1.44	ene.	sw.
Jalapa	4,757	25.56	83.5	43.0	66.0	84	5.21	n.	......
Lagos	6,275	24.17	77.9	39.0	60.3	66	1.70	nw.	nw.
Leon	5,901	24.32	78.3	43.9	61.7	62	1.06	ssw.	w.
Magdalena (Sonora)	......	......	......	......	64.2	......	0.28	ne.	n.
Mazatlan	25	29.91	84.6	62.1	76.6	77	0.00	nw.	sw.
Merida	50	29.92	94.3	67.6	78.1	81	4.62	ne.	e.
Mexico (Obs. Cent.)	7,489	23.09	72.0	47.3	58.5	68	0.80	nw.	ne.
Mexico (E. N. de S.)	7,480	......	......	......	......	......	......	......	......
Morelia (Seminario)	6,401	23.98	75.2	46.9	58.5	73	1.31	ssw.	w.
Oaxaca	5,164	25.08	84.7	49.1	67.3	65	2.93	nnw.	ne.
Pabellon	6,312	......	......	......	......	......	......	......	......
Pachuca	7,956	22.55	78.4	39.2	55.9	73	0.40	ne.	ne.
Puebla (Col. d. Est)	7,118	......	......	......	......	......	......	......	......
Puebla (Col. Cat.)	7,112	23.38	76.1	48.2	61.3	66	1.61	e.	ne.
Queretaro	6,070	......	......	......	......	......	......	......	......
Saltillo (Col. S. Juan)	5,377	24.93	77.5	24.4	58.6	77	2.40	n.	n.
San Luis Potosi	6,202	24.16	74.3	40.1	61.7	67	1.28	e.	w.
Silao	6,063	24.30	73.8	50.7	64.6	69	0.72	w. & nw.	w.
Tacambaro	......	......	......	......	......	......	......	......	......
Tacubaya (Obs. Nac.)	7,620	......	......	......	......	......	......	......	......
Tampico (Hos. Mil.)	38	......	......	......	......	......	......	......	......
Tehuacan	5,453	......	......	......	......	......	......	......	......
Toluca	8,612	21.91	70.2	38.8	52.5	76	1.34	w.	......
Trejo (Hac. Sil., Gto.)	6,011	......	......	......	......	......	0.91	......	......
Veracruz	48	30.02	86.9	61.0	75.4	77	9.84	nne.	nne.
Zacatecas	8,015	22.54	76.6	26.6	57.0	67	0.43	sw.	sw.
Zapotlan (Seminario)	5,125	......	......	......	......	......	......	......	......

In order that there may be no doubt as to the altitudes of the barometers at these Mexican stations, the Editor has solicited some information from Professor Bárcena, as mentioned on page 421 of the previous number of the Review, and takes pleasure in publishing the following reply:

Central Meteorologic-Magnetic Observatory,

Mexico, January 15, 1897.

Prof. Cleveland Abbe,

Weather Bureau, Washington, D. C.

Dear Sir: In the absence of Prof. Mariano Bárcena, Director of this Bureau, I have the honor to answer your letter of January 6.

All the elevations of the table are accurately determined and the barometers are in the best possible condition. The altitudes given those of the cisterns of the barometers. In Mexico this altitude is 17.5 meters above the ground; in Puebla, 15.0; in Mazatlan, 7.5; in Merida, 8.5; in other localities the barometers are a very few meters