1906, and the observing station. In fact this correction would be large. While no accurate measurements were made, it is thought that the difference of level on that date was about 1,500 feet. The air pressure corresponding to this difference of level would be about 0.055 of the barometric pressure above Mount Wilson. According to the pyrheliometry of August 21 and 23, 1906, we may estimate the general atmospheric transmission coefficient for August 22 as 0.90 for vertical transmission thru all the air above Mount Wilson. Hence, for vertical transmission thru the layer in question the transmission may be estimated at $(0.90)^{0.055}=0.994$.

For the very large angles of zenith distance Z, and nadir distance i, the paths of the beam in this layer ought not to be taken as simply proportional to (sec Z + sec i), and we shall rather use the air-mass values of Laplace as given by Radau in his "Actinometrie," altho these are also of doubtful application in the present instance. Let us call the air-mass $\varphi(Z)+\varphi(i)$, where φ is a function to be taken from the above sources. Then the values of reflection given for August 22, 1906, in Table 25 of the Annals, are to be increased in the ratio

$$\frac{1}{0.994[\varphi(Z)+\varphi(i)]}$$

to allow for the difference of level. No correction of this kind is thought necessary for the values of September 13, 1906, as the cloud was practically at the level of the observer.

An entirely new set of apparatus for measuring the reflecting power of clouds is now in place at Mount Wilson, and we hope to obtain a great many additional measurements there this year. We therefore refrain from computing at present a new value of cloud reflection and of the albedo of the earth from the observations of 1906.

EARLY METEOROLOGY AT HARVARD COLLEGE. 2.

By B. M. VARNEY, Assistant in Meteorology. Dated Cambr.dge, Mass., September 10, 1908.

In a recent article[1] on the early history of meteorology at Harvard College the writer mentioned the announcement of lectures by Isaac Greenwood, the first Hollis Professor of Mathematics and Natural Philosophy. While the strictly meteorological subjects comprise but a small part of this announcement, and therefore presumably of the lectures, it is probably one of the oldest extant records of scientific lectures in this country and thus has considerable historical interest. A few pertinent historical notes which the writer has been able to gather follow the "Syllabus." The absence of a full text of the lectures and of contemporaneous accounts of them renders a detailed study impossible.

A

Course of Philosophical Lectures,

with a great Variety of

Curious Experiments,

Illustrating and *Confirming*

Sir ISAAC NEWTON'S *Laws*

OF

MATTER AND MOTION.

By ISAAC GREENWOOD, *A. M., &c.*

ARTICLE I.

Of the FUNDAMENTAL PRINCIPLES *of* MATTER

Where the essential Properties *of* Space *and* natural Bodies, *are shewn, in a great variety of* Experiments: *And the* NEWTONIAN LAWS of Matter *demonstrated.*

    I. *Of the* ESSENTIAL PROPERTIES *of Space and* natural Bodies.

LECTURE I.

OF EXTENSION—The Manner of *Conceiving* and the *real Proof* of a *Vacuum*, by several *curious Experiments*—The *inconceivable Divisibility* of the Parts of Matter, shewn in *natural* and *artificial Instances*, by a Sett of *microscopical Observations*, and prov'd by Dr. *Neiuwentyt's Experiment* of the *Division* of Water, by the *Æolopile;* on which *Principle* the *Operation* of the celebrated *Engine to raise Water by Fire*, will be explained in a very large *Cutt* thereof.

Lecture 2. Of the SOLIDITY and POROSITY of *natural Bodies* in many *useful Experiments* and *critical Remarks*; where particular Notice will be taken of the *Alterations* they are subject to by *Heat* and *Cold, Dryness* and *Humidity, Weight* and *Levity*, in many *curious Experiments*. And of the STRUCTURE and FORMS of *natural Bodies*,—their *inward Disposition*,—*external Configuration*, with a Variety of *Experiments* relating to the *Changes* of their *Forms* on many Considerations.

    II. *Of the* NEWTONIAN LAWS *of* MATTER.

Lecture 3. Of the *Fundamental* LAW; viz. GRAVITY or GRAVITATION, (where all its *Properties* will be *very particularly* illustrated and confirmed) together with the other two *General Laws*; viz. the COHÆSION and REPULSION existing between the *minute Parts* of *Matter*, in a great Variety of *Experiments*.

Lecture 4. Of the SPECIAL LAWS of MATTER; viz. MAGNETISM and ELECTRICITY; where their *surprising* and most curious *Phænomena* are shewn in a Sett of very useful and *delightful Experiments* of *late Invention*.

ARTICLE II.

Of the FUNDAMENTAL PRINCIPLES *of* MOTION.

    I. *The* Principals *of* MECHANICS.

Lecture 5. *Explanations* of *necessary Terms*, with many *Experiments* relating to the *Places* of the *mechannic Centers* of Bodies, their *Velocities, Quantities of Matter*, and *Momenta* of *Motion*.—The *Fundamental Propositions* relating thereunto, proved on proper *Machines—Experiments* about the *falling, sliding,* and *rolling* of *Natural* Bodies, &c., very *curious;* the *Solution* of several entertaining *Problems*, relating to *Animal Motion* and *Action*; with a Conclusion concerning the Explanation of the *Motion* of the *Astronomical Bodies* on these *Principles*.

Lecture 6. A full *Explanation* with many *Experiments*, on the *Five Mechanical Powers* or *Simple Machines*; viz. the several *Kinds* of *Ballances, Levers, Pullies, Wheels* and *Axles, Wedges* or *Screws*; of *Compound Machines*; and the *Invention* and *Use* of many *useful* and *curious Engines*.

    II. *Of the* NEWTONIAN STATICS.

Lecture 7. Of *absolute and relative motion*.

Sir ISAAC NEWTON'S

1. *Law of Motion*, viz. *That all Bodies continue in the State of Motion or Rest, uniformly, in a right Line, except so much as that State is Chang'd by Forces impress'd*; with many *Examples* and *Experiments*; Of the great Use thereof in the *Motion of Bodies* proceeding from *single* and *Compound Impulses*. Of the *Phænomena* of *Diagonal Motion* and *oblique Powers*.

2. *Law of Motion*, viz. *That the Change of Motion is always proportional to the moving Force impress'd; and is always made in the right Line in which that Force is impress'd*. Of the *Phænomena* of *Accelerated* and *Retarded Motion*.

Of Projectile Motions.

Lecture 8. Of *oblique Descents*; where all the curious *Experiments* and *Observations* relating to *Pendulums* and their *Uses*, will be made. Of *Circular* and *Elliptical Motion*, with many *Experiments*. Dr. *Desagulier's* celebrated *Experi-*