

Hence the deep thinker, who seriously and earnestly studies the weather problem, discovers in the various aspects and features of our atmospheric movements "the chains of cause and effect so strangely and wonderfully linked together," that the more he ponders over the subject the more intense becomes his desire to continue his researches.

To the casual observer, who sees and comprehends nothing beyond the limits of his own horizon, our atmospheric changes appear obedient to no law, seeming fickle in all their movements, and subject only to chance. To the persevering investigator, however, who compares reports taken simultaneously at various points over the country, these abrupt changes and reverses of weather, are by no means capricious or accidental. He sees that they follow certain laws, all of which are founded upon natural principles.

In this country we seem to have had but few men—such as Espy, Redfield, Loomis, Ferrel—who have given this subject enough thought and study to enable them to impart instruction to others, and there are now but very few institutions of learning, where there is any pretence made at teaching weather science, and even what is taught is of a very elementary nature.

Since the establishment of a Weather Service by the Government in 1870, a few adventurous minds—Tice, Vennor, Smith, Mansill, Blake, Hicks, and others—have taken bold and important steps towards perfecting "long range" forecasting as a science. Their new theories have for some years been contemptuously ignored by the Signal Service Bureaus, still these theories are known to be steadily, if but slowly, gaining ground, and will, no doubt, in time be universally accepted.

That successful "long range" forecasts can be made, is shown by what follows:—In the year 1884, a class at Harvard, composed of 88 students, took a course in the elements of Meteorology, with the special view of forming trained habits of observation. Early in December this class undertook, by taking into consideration the solar and lunar tide influences on atmospheric currents, to forecast the weather for all parts of the United States on the following Christmas and New Year's days. The predictions were forwarded