Volunteer Climatologist

"Climatology suffered a great loss", stated Charles D. Reed, Director of the United States Weather Bureau at Des Moines, "when David E. Hadden, cooperative weather observer at Alta, Iowa, died on September 20, 1943." He was acknowledged to be one of the most reliable weather reporters in the whole country. Beginning on January 1, 1890, he made his final record on August 6, 1943, scarcely a month and a half before he died. Daily for fifty-three years, seven months and five days, he went about this self-imposed task without interruption, except for brief intervals, when the records were kept by members of his immediate family, usually his daughter, Mrs. Lola Pepper.

Throughout all these years this work involved an incredible amount of painstaking attention such as only an ardent enthusiast could or would endure. In addition to the 19,386 daily, and often twice daily observations, there were 2775 weekly, 643 monthly and fifty-three annual reports to be made, requiring many precious hours of time which might otherwise have been devoted to business or recreation. In retrospect this seems to have been

a tremendous task, yet when done day by day, a few minutes at a time, the work was more of a pleasure than a burden.

When the Iowa Weather and Crop Service was formally established by law in 1890, one of the principal functions was the collection of meteorological information for the benefit of agriculture. Many competent persons in all parts of the State volunteered to keep accurate records of temperature, precipitation, wind velocity, and other significant data. On the basis of the reports of these observations the Federal Weather Service issued weekly reports. Over a long period the climatic conditions of a region can be determined. In establishing this service neither the State legislature nor Congress recognized the magnitude of the undertaking. While literally thousands of stations were necessary to accomplish the desired ends, only meager funds were provided to finance the project. Under these conditions, an extensive system of weather observation was established, comprising at its peak some five thousand unpaid volunteer coöperative observers, to whom the Weather Bureau furnished only the necessary instruments and stands.

It is truly a remarkable service to which David Hadden contributed his time and talent. In the hustle and bustle of a busy, modern world, when

so many people ask only, "What is there in it for me?" one is prone to wonder just what urge should prompt any individual to devote so much energy to such an exacting task as that required of a co-operative weather observer. The answer to this question throws considerable light upon the quality of thinking and the stability of character of the man who undertakes such an obligation. Certainly in the case of David Hadden it was indicative of his scientific interest and methodical habits.

While the duties of a coöperative weather observer may at times have been interesting and pleasant, there were other times in the rigorous climate of northwest Iowa when they became very trying, indeed. For instance, to be compelled to remove many feet of drifted snow to get out to the kiosk (instrument shelter) to take readings in temperatures as low as 30° below zero, and to measure the amount of rainfall on stormy days was certainly no picnic. Pleasures often had to be foregone so that the records might be kept, but such is the life of true scientists who consider such sacrifices all in a day's work.

Specifically, what are these duties of a weather observer? There are a number of measurable factors pertaining to the weather which must be ascertained and kept accurately over long periods of time so that a "mean" may be established for

any given region. It is from the annual cyclic variations of the "mean" that the significant changes or trends in climate may be determined and future variations predicted. Of prime importance are the records of temperature and rainfall, but other factors such as prevailing wind direction, barometric readings showing atmospheric pressure, and sky conditions are also of almost equal importance.

In the absence of a thermograph for recording temperature changes, the readings must be taken manually by means of two thermometers which record the maximum and the minimum temperatures in a given period. These must be read daily or oftener, and the indicator shaken down for the next reading. This requires meticulous attention. The making of precipitation records is comparatively simple in summer when all that is necessary is to measure the amount of water (in inches) collected in the rain gauge cylinder, but when precipitation occurs as snow or sleet this must first be melted before the measurements are made. The direction of and hourly changes in the wind may be noted from a wind vane, which is usually kept nearby, or from such natural indicators as the moving clouds, smoke or leaves which may be observed from almost any location where the observer may chance to be. Not only must the extent

of cloudiness be noted throughout the day, but also the type and character of the clouds.

This was the type of thought that occupied David Hadden's mind as he went about his daily work. Seldom did the actual record keeping consume more than ten minutes a day, except when reports were made. Perhaps on the average throughout the years, he spent no more than fifteen minutes per day in the discharge of his duties, but even this amounted in the aggregate to a considerable period of time. His work was always so carefully done that month after month passed without errors or inconsistencies being found by rigid examination of his reports at Des Moines and Washington, D. C. "He was alert to detect and report defects that occasionally developed in his instruments, which made prompt replacements possible."

Upon the completion of a half century of service he received a most cordial letter of commendation from the Chief of the United States Weather Bureau in Washington. "Your service, fidelity and devotion are of the kind that cannot be purchased with money", wrote W. R. Gregg. "Your record stands as a monument to your memory that will be revered and appreciated by unborn generations beside which words of commendation from us who at the moment are admin-

istering the affairs of the Weather Bureau are but weak, fleeting and transitory."

In 1934 he received a small grant-in-aid from the Carnegie Foundation to conduct some research in statistically analyzing his long and valuable meteorological records. Many interesting things were discovered, such as the decrease of 3.96 inches in the mean annual precipitation at Alta during the period covered by his records. "The fact that the observations were taken in the same ideal spot with the instruments exposed and observed in the same way, makes this record especially valuable."

It is doubtful if the observational record established by Hadden will be excelled by any other volunteer observer. One of the most comparable and valuable collections of climatological data was kept by T. S. Parvin for thirty-four years at Muscatine and Iowa City between 1839 and 1873. But Parvin's statistics cover a much shorter period and possess neither the accuracy nor uniformity of place of Hadden's. In the present era of mobility of residence, distracting events, and rarer sense of public responsibility, few men are likely to challenge the record and reputation of Climatologist David E. Hadden.

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