

The Alta Observatory

Whenever a man gains wide recognition and distinction outside his normal field of activity, he in effect invites others to seek the cause. Doubtless, Climatologist David Hadden early became intrigued by those rhythmic cycles of the weather, for which there was no satisfactory explanation. Here, indeed, was a challenge for a scientist such as he was. Since he understood the relationship between solar phenomena and terrestrial climatic conditions, and realized that all the earth's light, heat, and energy is derived directly from that body, it is not strange that the suggestion sooner or later occurred to him to investigate more fully all the events occurring on the sun's surface which might in any manner have a bearing upon the final solution of this problem. To do this, of course, required the employment of astronomical instruments, including such other physical accoutrements as might be necessary. Thus the idea of the Alta Observatory was born and the volunteer climatologist became an amateur astronomer.

Like similar institutions, the Alta Observatory grew from small beginnings to an efficient scientific workshop. The results accomplished in it

were out of all proportion to the size and appearance of the physical equipment. Unpretentious and unimpressive as it seemed, however, when compared with many of the great observatories of the country, Alta's "one man observatory" was nevertheless as convenient and well equipped, for the purpose for which it was intended, as though thousands of dollars had been lavished upon its erection. The instruments employed by Hadden were also well adapted for his use.

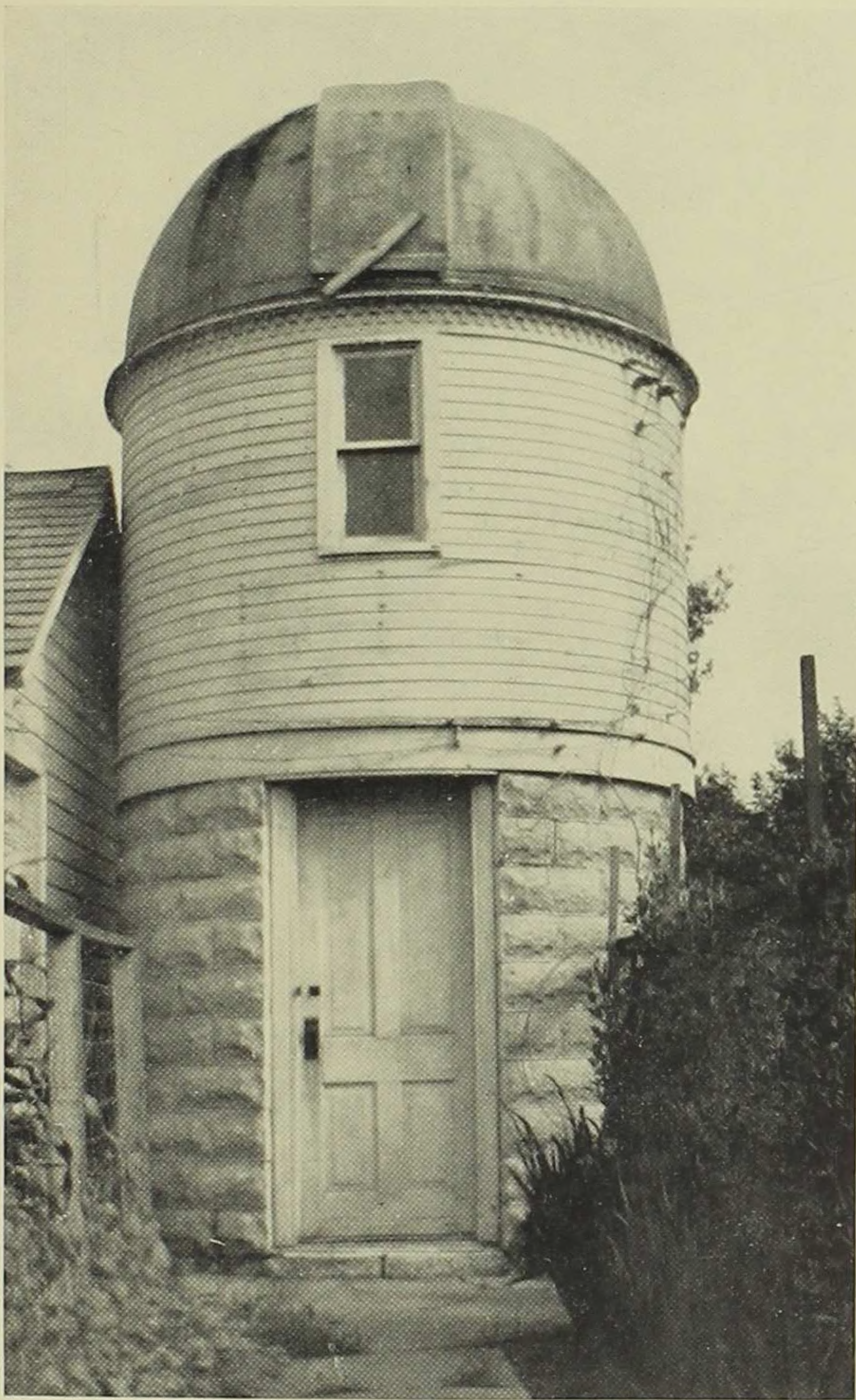
As a matter of fact, Hadden built two observatories at Alta. The first, or original one, which he used for many years, was more in the nature of a preliminary or experimental building, housing his instruments temporarily while he worked out plans and saved money for the erection of the more elaborate and permanent one. Even this first small building, however, was more than a mere shelter house, as it possessed a revolving dome which, after a fashion, serves to classify it as a real observatory.

In designing the present observatory, Hadden stated that "other considerations besides the expense had also to be kept in mind. I wished to make it as compact as possible, owing chiefly to the limited room on the residence grounds and its proximity to other buildings." It must be remembered that in planning and erecting these small

private observatories, he was pioneering for the entire country. Amateur astronomers were in those days few and far between. In all Iowa, it is said, there were "probably not more than three such endeavors down to the beginning of the present century." It was necessary for him, therefore, to rely almost solely upon his own ingenuity, and that of the mechanically-minded carpenters among his acquaintances.

While the present observatory building had a diameter of only nine feet, this was ample to properly house the five-and-one-half-inch refractor telescope. The footing of the building consisted of a bed of concrete upon which was placed a wall of circular cement blocks. These were built up to a height of about eight feet above the level of the ground. This formed the first story, and served as a substantial foundation to carry the observing room with its heavy instruments and revolving dome above it.

O. P. Dagger, a local carpenter, was employed to build the superstructure. This was constructed of lumber and firmly secured with iron bolts, set in the cement-block wall. The floor joists were made of two-by-eight pine planks suitably cross-braced to give rigidity for the telescope mountings. Around the circumference were placed two-by-four uprights, about one foot apart, upon the exte-



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rior of which ordinary house siding was fastened. The interior was finished with three-eighths-inch basswood ceiling lumber nailed horizontally. This method of construction resulted in a very rigid building "which has not warped or deviated from a true circle in the least."

The plate on top was made of several thicknesses of lapped pine, strongly spiked to the two-by-four uprights. The frame and ribs of the dome were cut from one-inch pine boards and all sawed to a circular diameter of nine feet. The covering was of tin, painted both inside and out and nailed firmly to the ribs and all joints or seams were carefully soldered. The opening or slit, through which the sky could be viewed, was eighteen inches wide and covered with slide glides over the dome with suitable tracks on the plates. These glides were manipulated and fastened down with ropes.

The dome itself revolved on large glass balls placed in a V-shaped track on the plate of the building and matched by a similar inverted track on the bottom of the dome. In this track a quantity of petrolatum was placed to insure the proper lubrication of the mechanism and to render the motion smoother and easier. The upper, or observing room, was reached by a small stairway on the inside, the opening for which was closed by a trap door.

The observatory building itself had an over-all height of about eighteen feet, and the lower room, which was well lighted by two windows, was fitted up as a small office and library, containing a desk and folding chairs, and was used as a store room for a nine-and-one-half-inch reflecting telescope which could be wheeled out on to the lawn and used for the observation of the night sky when occasion warranted. The rooms were electrically lighted, a dim-a-lite lamp being placed in the observing room so that the light could be dimmed or extinguished altogether while observing.

Writing in the December, 1910, issue of *Popular Astronomy*, Hadden described his new observatory, for the benefit of amateur astronomers, "who might also wish to consider erecting a similar building for their own use." It seems that by this time his reputation as an astronomer had spread far and wide and that correspondence concerning his observatory had grown to considerable proportions. The article gave more extensive currency to his ideas than was possible by private letters.

A picture of the new observatory accompanied the article. In the background, a few feet farther west, could be seen the original smaller one "which has done duty during the past fifteen years or more and where some of the pleasantest hours of

the writer's life have been spent in seeking to learn more of God's handiwork — the universe of stars and suns."

While no published description of the first building has been found, its principal features were plainly shown in this photograph. It was a one-story, frame, octagonal-shaped structure, probably about eight feet in diameter, resting upon a stone or cement foundation. The walls were surmounted by a hemispherical-shaped dome, not unlike the one on the new observatory nearby. It is presumed that this original observatory was removed as soon as practicable after the new one was completed and put into operation.

In this smaller building, wrote Hadden, "was first mounted a superb little three-inch telescope on an equatorial mounting which was purchased from Dr. J. S. Brashear, and the writer will ever cherish as part of life's sweetest memories his first glimpse through such an instrument from a master's hand." This instrument was later replaced by a four-inch one by the same maker, and to this equipment was added, from time to time, such other instruments as the nature of the work required and his purse afforded.

Working here in his observatory, mostly alone, day after day, year after year, over a period of nearly fifty years he kept a complete and accurate

record of solar phenomena such as is now attempted only by endowed observatories with the services of a number of professional astronomers. These studies gave him deep personal satisfaction and at the same time won well-merited acclaim.

On August 22, 1940, David Hadden, doubtless realizing that his days of scientific research were rapidly drawing to a close, made arrangements to dispose of his telescope and other instruments to Buena Vista College at Storm Lake for the nominal sum of one dollar and the further stipulation that the college should grant a four-year tuition scholarship to any of his grandchildren who might wish to take advantage of it. In fulfillment of this contract, the equipment was removed to the college campus during the present summer. A Hadden Observatory is to be established there as soon as practicable. One granddaughter, Dorene Hadden of Cushing, Iowa, is attending Buena Vista College on the terms of the scholarship.

BEN HUR WILSON