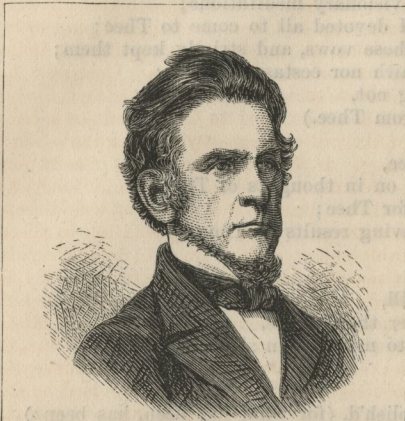


## OBSERVATORIES IN THE UNITED STATES.



ORMSBY M'KNIGHT MITCHELL.

## I.—THE NEW OBSERVATORY AT CINCINNATI.

**L**ITTLE more than thirty years ago it could not be said that there was one astronomical observatory in the United States. To-day it is safe to place the number of all classes, public and private, beyond fifty.

The first of these statements may strike many of our readers with surprise. The authority of John Quincy Adams will confirm its truth. "Is there," he asked, at the close of a magnificent oration at Cincinnati in 1843—"is there one tower erected to enable the keen-eyed observer of the heavenly vault to watch from night to night, through the circling year, the movements of the starry heavens and their unnumbered worlds? Look around you, look from the St. John to the Sabine, look from the mouth of the Never-sink to the mouth of the Columbia, and you will find not one! or if one, not of our erection."

Mr. Adams had made astronomy a favorite pursuit. He was too well informed as to its progress in our country not to know the existence of some additions to our colleges in the form of astronomical buildings and their instruments—designed almost exclusively for instructing students in their use. He appreciated them; for he was one of the first to urge their procuring by his own Harvard.

But his just conceptions of a true observatory involved yet higher character and aims in it. It must steadily labor for *discovery*. It must be fully equipped for this, and be provided with a *personnel* who could give their whole energies to that series of observations running through many years, which alone can secure valuable additions to astronomical knowledge and insure its

benefits to men. For the establishment of such an institution he had made his well-known appeal to Congress in 1825. He was ridiculed; but he remained as strenuous an advocate as ever for the establishment of observatories of the first class both at Washington and at Cambridge. In the very year before this address at Cincinnati, he had urged, in his place in Congress, the perpetual appropriation of the whole interest of the then unappropriated Smithsonian fund for an observatory for the people.

"The express object of observatories," said he, "is the increase of knowledge by new discovery. It is to the successive discoveries of persevering astronomical observations through a period of fifty centuries that we are indebted for a permanent standard of time and for the measurement of space." In 1843, he was clearly justified in saying that no observatory existed in this country capable of holding aims exalted as these. Comparatively few individuals appreciated or desired such. Most persons were content to look to Greenwich only. They agreed with some of our old officers who, in 1830, "were not sensible of any inconvenience resulting to our navy by relying on British nautical almanacs, though it might be desirable to establish an American almanac as a matter of pride and national independence."

The year 1843 was, however, an era in the history of our observatories, and Cincinnati was their birth-place. Her institution, and those of Cambridge and Washington, sprang up, and the enthusiasm of the era started others, whose equipment has been secured largely by their success. We do not forget the earlier and valued work of Professor Leomis at Hudson, the efforts at Yale and Cambridge, or at the High School in Philadelphia, the observatory of which became afterward so noted by its introduction into this country of the Munich instruments, and their brilliant use by Walker and Kendall. Yet the honor of first establishing a separate institution, with the aims characterizing a true observatory, belongs to the Queen City. We are led up to her beautiful hills, to the genius, the enthusiasm, and the persevering labors there of her master-spirit in this work, ORMSBY M'KNIGHT MITCHELL.

Our advance in astronomy to-day is nothing short of the marvelous. As in other branches, so in this, "the noblest of the sciences," progress is being made, as the Astronomer Royal at Greenwich has said, "by enormous strides." The brilliant discoveries during the solar eclipses of 1868, 1869, and 1870, and the revelations of the physical constitution of the sun and stars by the spectroscope and by the photograph sun pictures during the year close behind us, are in proof.