

air which would indicate that he had completely explained the phenomenon upon his theory, whereas there has never been even an attempt made to explain any thing by it.

The law of gravitation, suggested by the fall of an apple, was withheld by Newton for a number of years, because, on account of incorrect data, it was not confirmed by observation. With the reserve and caution characteristic of a true philosopher, he thought it should be fully tried and tested first. But now we have a theory thrust upon us for our assent which has not been developed, and applied in the explanation of a single phenomenon in the local disturbances of the atmosphere; and yet I am censured for thinking that there has been entirely too much haste in the matter, and that it should first have been shown that it will at least account for a few of the observed atmospheric phenomena. Let the advocates of this theory, if it can be so called, take up the matter now, and show that it accounts for the phenomena as well as, or better than, the condensation theory. Let them give me a chance to look into the workings of this new theory.

WM. FERREL.

Martinsburg, W. Va., Jan. 10.

BOOK-REVIEWS.

Tycho Brahe: a Picture of Scientific Life and Work in the Sixteenth Century. By J. L. E. DREYER. Edinburgh, Adam & Charles Black. 8°. (New York, Macmillan, \$3.50.)

THIS is a work of much value to students of the history of science. Tycho Brahe holds a prominent place in the annals of astronomy; and he was, moreover, a member of the Danish nobility and a man of considerable means, with a wide circle of acquaintances and many opportunities for travel. Hence his life was more dramatic and fuller of incident than the lives of scientific men usually are; and Professor Dreyer has here related it in an interesting way. The book is well written, with great

care in collecting and sifting the facts, and with an evident desire to be just to all parties. The early life and studies of Tycho are described somewhat briefly; but a full account is given of his early attempts at astronomical observation and of the endowments given him by King Frederick II. to enable him to pursue his chosen work. The Island of Hveen, which was assigned him to hold during the king's pleasure, became the scene of his most important discoveries; and the income it afforded, together with certain other revenues placed at his disposal by his royal friend and patron, enabled him to hire assistants and to prosecute his work vigorously for many years. But after the death of Frederick the authorities were less favorable to Tycho; so that at last his endowments were taken from him, and he left Denmark for a new field of labor under the German emperor at Prague. Professor Dreyer gives a very good description of the Island of Hveen, and the facilities available there for astronomical work, and then endeavors to explain how and why Tycho Brahe lost his position there, — a misfortune due quite as much to Tycho's own faults as to the disfavor of the authorities. His new station at Prague is also well described; and one of the most interesting passages in the book is that relating the meeting of the veteran Tycho with the young Kepler, an event of such significance in the development of science. Indeed, this meeting was the most important result of Tycho's residence at Prague, which was soon terminated by his death in his fifty-fifth year.

Of Tycho Brahe's scientific achievements, Professor Dreyer gives a full and detailed account. He was an observer rather than a thinker, and his biographer thinks that his observations could hardly have been surpassed in accuracy but for the invention of the telescope. The instruments he employed, many of which were devised by him, are described with some minuteness, and the importance of his observations as a basis for the theories of Kepler and Newton is clearly shown. Tycho's most important labors, in Professor Dreyer's opinion, were those relating to the

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