

SWITHIN ST. CLEEVE: VARIABLE STAR OBSERVER

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Abstract

Thomas Hardy's romance **Two on an Tower** is the first novel to use an astronomical background as its unifying theme and the first to cast an astronomer in the role of protagonist. One subplot of the novel concerns Swithin St. Cleeve's quest for fame through his observations of variable stars. Despite a number of observational and instrumental setbacks, he makes an amazing discovery about variable stars, one he is certain will excite the astronomical world. But before he can get the news into print, another astronomer announces that very discovery and takes from St. Cleeve the fame he thought would be his.

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Thomas Hardy is one of the most widely read and respected of the late Victorian novelists. In 1881 he began work on a novel in which science would be "not the padding of romance, but the vehicle of romance." The result was **Two on a Tower**, published in 1882. A reviewer in the literary weekly **Athenaeum** wrote of that romance: "We have heard of literary novels, sporting and dramatic novels, law and politics novels, musical novels, but an astronomy novel never."

Two on a Tower was the outcome of Hardy's wish "to set the emotional history of two infinitesimal lives against the stupendous background of the stellar universe." It is the tragic story of Lady Viviette Constantine and Swithin St. Cleeve, an aspiring astronomer nearly ten years her junior. Their love initially develops in counterpoint to Swithin's variable star work.

Hardy's astronomical research encompassed more than just reading. Late in 1881 he asked for and received permission to visit the Royal Observatory at Greenwich to gain first-hand information about professional telescopes and their operation. His guide was W. H. M. Christie, the new Astronomer Royal. Had he applied earlier, such a request from a mere novelist surely would have been turned down by Christie's predecessor, the imperious Sir George Biddell Airy.

Throughout his novel Hardy demonstrates his competence in handling astronomical technicalities, as indeed he does in other novels. He tells his readers, for example, that about 3000 stars are visible at one time to the naked eye, that the fixed stars move through space "with incredible velocities," that Leo and Virgo each contain a close double star, that the Coal Sack in Cygnus has a counterpart in the southern sky, and that diffraction rings are seen as perfect circles in a properly aligned refractor.

He fares less well critically. "In spite of felicitous passages," notes the **Cambridge Guide to English Literature**, "the novel cannot be regarded as more than a pot-boiler." And a contemporary review in the political weekly **Spectator** complained, "There is not, from beginning to end, a single gleam of probability in the whole plot."

Be that as it may, the first nine chapters of **Two on a Tower**, roughly one-quarter of Hardy's romance, can stand alone as a complete story, for they tell of Swithin's quest for fame among the variable stars. The astronomical plot, much condensed, is as follows:

Lady Constantine's notorious husband has been hunting lions in Africa for the past two years, leaving his spouse "neither maid, wife, nor widow." One day she climbs a stone tower on their estate to discover Swithin St. Cleeve observing the sun through an alt-azimuth telescope. He has used the tower as an observatory for some time. With the brashness of youth the twenty-year-old tells Lady Constantine his ultimate aim is "nothing less than the dignity and office of Astronomer Royal" and that at night he observes "with a view to my great work on variable stars."

The lonely woman is warmly attracted to the solitary astronomer and returns to the tower for a promised telescopic tour of the heavens. During their long observing session and conversation, Swithin reveals another yearning. "I hope to be the new Copernicus," he says. "What he was to the solar system, I hope to be to the systems beyond." Lady Constantine, who by now trusts the young man, reveals a personal problem. She received an anonymous letter intimating that Lord Constantine was seen in London and asks if Swithin will go there to find the truth of the matter.

"Personally I would go to the end of the world for you," he responds, "but I am preparing a work on variable stars. There is one of them which I have exceptionally observed and on this my great theory is mainly based. Now, to clinch my theory, there should be a sudden variation this week - or at least next week - and I have to watch every night not to let it pass."

"You are the most ungallant youth I ever met," sighs Lady Constantine, "but I suppose I must set it down to science." She offers to watch his star every night, and on that basis Swithin undertakes the London mission. He finds the man is not Lord Constantine, merely someone who resembles him.

Swithin monitors his star with an opera glass while in London. He believes a change in brightness took place on a Sunday night, but is not sure. Filled with anxiety, he hurries back to Lady Constantine. She had quite forgotten to watch on two occasions. One of them was that critical Sunday night.

The stunned astronomer sadly reaches for his valise and, to his horror, drops a package he was carrying. He picks it up and shakes it; a clicking sound issues from inside. Swithin had spent his entire life savings while in London on an achromatic objective for the equatorial telescope he intends to build atop the tower. "Can it be mended?" asks Lady Constantine. "Mended? No, no!" is Swithin's anguished reply.

Lady Constantine feels a surge of compassion for the shattered young man holding his shattered lens. She orders a new objective so Swithin can complete his instrument. His task completed, he returns to her with a lugubrious announcement. His telescope is a failure.

Again Lady Constantine is touched by Swithin's misery. She will buy an equatorial from the best optician in London and asks Swithin to describe his heart's desire. "It is a splendid instrument," he tells her, "with an object lens of, say, eight or nine inches, mounted with its axis parallel to the earth's axis, and fitted with graduated circles denoting right ascensions and declinations; besides having several eyepieces, a finder, and clock-work to make the telescope follow the motions in right ascension. Ah, an equatorial is a thing indeed!"

Workmen from Hilton & Pimm's establishment arrive at the tower to erect the telescope and enclose it in a dome that rolls on cannon balls. (A leading maker of astronomical instruments in Hardy's time was the firm of Troughton & Simms.) Swithin is enchanted. "I can see

double stars in the Lion and Virgin where I saw only one before," he tells Lady Constantine. "It is all I require to keep me going."

At last an elated Swithin rushes to Lady Constantine. "I have made an amazing discovery in connection with the variable stars," he exclaims. "It will excite the whole astronomical world, and the world outside but little less. I had long suspected the true secret of their variability, but it was by the merest chance that I hit upon a proof of my guess. I said I would be the Copernicus of the stellar system, and I have begun to be. Your equatorial has done it, my good, kind Lady Constantine!"

"Publish it at once in some paper," warns his benefactress. "Nail your name to it or someone will appropriate it - forestall you in some way. It will be Adams and Leverrier over again."

Swithin prepares three copies of "A New Astronomical Discovery." One he directs to the Royal Observatory, another to a prominent astronomer, another to the Royal Society. He also prepares a statement for the leading daily paper giving the essence of his discovery.

His documents are too precious to be dropped in a post box, so Swithin sets out through the rain to a post office five miles distant where they can be registered. He stops at his bookseller to pick up the astronomical periodicals to which he subscribes, then turns homeward, reading his papers as he goes. Thomas Hardy describes that return trip:

On he strolled through the rain holding his umbrella vertically over the exposed page to keep it dry while he read. Suddenly his eye was struck by an article. It was the review of a pamphlet by an American astronomer in which the author announced a conclusive discovery with regard to variable stars.

The discovery was precisely the discovery of Swithin St. Cleeve. Another man had forestalled his fame by a period of about six weeks.