Biographical Encyclopedia of Astronomers

See, Thomas Jefferson Jackson

Born near Montgomery City, Missouri, USA, February 19, 1866

Died Oakland, California, USA, July 4, 1962

American astronomer T. J. J. See is remembered, if at all, for erroneous, perhaps even fraudulent, claims for the detection of planets orbiting other stars, though other of his once wild-sounding ideas sound superficially like our modern understanding of, for instance, solar-system formation. See earned his undergraduate degree from the University of Missouri at Columbia in 1889 and his doctorate from the University of Berlin in 1892 with a thesis on the orbits and origins of visual binary stars. Upon returning to the United States, he spent three years at the University of Chicago. While there, he ran afoul of George Hale, the driving force behind the establishment of the Yerkes Observatory (and later those at Mount Wilson and Palomar), a circumstance that did little to advance See's career See spent the next two years employed by Percival Lowell, during which time Lowell directed a survey of southern double stars observed from Mexico. In this instance, as in most cases during his career, See was a source of contention and was later accused of falsifying observations.

In 1899, See was appointed a United States Navy professor of mathematics, a rather senior post for such a young man, probably due to the influence of fellow Missourian Champ Clark, a powerful member of the United States House of Representatives. See spent the next three years at the United States Naval Observatory, followed by a year teaching mathematics at the Naval Academy. Finally, See was transferred to the Naval Observatory at Mare Island, California, in 1903, and he stayed there until his retirement in 1930. The Mare Island Observatory was a dead end, for there were no instruments capable of serious astronomical research. See was the only astronomer there, and his primary duty was related to chronometers. Moreover, he had little interaction with other astronomers, whether in the Bay Area or elsewhere.

See's early work on double stars was generally regarded as good, but he soon began to make dubious and outlandishly inflated claims for his research on a wide variety of subjects. See's report of visual detection of planetary companions to nearby stars was published only in *Atlantic Monthly* and must have arisen entirely from his imagination. But his orbit for a planet around the secondary star of the visual binary 70 Ophiuchi appeared in the *Astronomical Journal* in 1896 and looks very much like it might have come from real data. Curiously, the same star was one of those for which there were erroneous reports of planetary detections in the 1940s. In 1899, Forest Moulton demonstrated that See's invisible companion in the 70 Ophiuchi system did not exist; the latter's intemperate response to this refutation caused him to be banned from the pages of the *Astronomical Journal.* Later, in 1912, Moulton showed that parts of See's "capture theory" of planetary formation had, in fact, been "captured" from previously published work by Moulton. Such peccadilloes ended See's career as a professional astronomer, and he was ostracized from most professional publications (a most unusual circumstance). Although conscientious in his own way and incredibly industrious, he toiled on

alone, secure in his belief that he was one of the greatest (and least appreciated) scientists of all time, "The American Herschel" and "The Newton of Cosmogony."

Because of See's outlandish behavior, his speculations were universally scoffed at, though some of them turned out to be correct (generally not for the reasons he suggested). The most startling example was his assertion that lunar craters were due to impacts and not due to volcanism, which was the accepted theory at the time (though both ideas can be traced back very far). In that connection, See had experiments performed with projectiles fired from naval guns, resulting in miniature craters complete with central peaks. Moreover, he stated that all bodies in the Solar System that have solid surfaces carry similar scars, a prediction that has been amply confirmed

In other areas, See believed that the orbits of the major planets are so nearly circular because of the effects of a resisting medium during their formation, but his circularizing medium was the "luminiferous ether," which he was still claiming as one of his scientific interests into the 1930s, long after the Michelson-Morley experiment had shown that no such medium exists. He also said that mountain ranges are not elevated because the Earth is cooling and shrinking. Both suggestions were considered outlandish at the time, but not now.

In recent decades, See has become somewhat of an icon for a segment of planetary astronomers. See was an incredibly enthusiastic member of scientific societies (arguably to bolster his fading reputation) and belonged to at least 25 societies in astronomy, mathematics, seismology, and physics in at least five countries.

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