

Historical Musings

Astronomy on Fire: The Story of the Dakota Wesleyan Observatory

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The ancient Greeks believed that the goddess Urania ruled the stars. Today, few South Dakotans even know her name.¹ This oversight exists despite the efforts of several leaders at Dakota Wesleyan University (DWU) in Mitchell, where I now teach astronomy. These key figures endeavored to spread knowledge of the stars by building an observatory on campus in the late nineteenth century. Twenty-five years before my birth, however, students at the school destroyed that facility and sent it up in flames.

According to legend, on 24 February 1920, Herbert Emery, a history major known as a “deep thinker,” set the Dakota Wesleyan Observatory on fire. He committed this arson while his classmates cheered.² In the light of the inferno, students whooped for joy, though Levi Asa Stout, the school’s former president, may have had the greatest reason to celebrate. At the time of the fire, Stout taught Greek, math, and astronomy at DWU; in this last capacity he served Urania well, tracking the stars across the northern plains.³ How and why the university set out to pursue that knowledge in the first place forms the essence of this story.

I thank Laurie Langland, the archivist for Dakota Wesleyan University; her labors are evident in every paragraph. Associate Professor of Mathematics Joan Lubben constantly corrected the original manuscript and photographed the observatory as it now stands. Kyle Herges, an associate professor in the Department of Digital Media and Design, contributed his time and drone to take photographs of the Dakota Wesleyan Observatory from above.

1. *Hesiod, Homeric Hymns, Epic Cycle, Homerica*, trans. Evelyn White (London: William Heinemann, 1914), pp. 75, 346. Urania’s legend begins with Homer and Hesiod. She is one of the nine daughters of Zeus and a great granddaughter of Uranus, the Titan who embodied the sky.

2. *Dakota Wesleyan University 1921 Tumbleweed*, p. 42. See also *Mitchell Morning Republican*, 26 Feb. 1920; *Mitchell Evening Republican*, 26 Feb. 1920; James D. McLaird, *The Dakota Wesleyan Memory Book 1885–2010* (Mitchell: Dakota Wesleyan University, 2010), p. 42.

3. *Second Biennial Catalogue of the Dakota University, Mitchell South Dakota, 1887–89* (Mitchell: Mitchell Printing Company, 1889), p. 6; *Catalogue Dakota University, 1895* (Mitch-

Two men rose to rescue Dakota University (DU)—as DWU was known until 1904—from the Panic of 1893. The university's board of trustees made Stout the acting college president, hoping he could use his skills as a linguist to garner much needed donations. When he failed to do so,

ell: Dakota Wesleyan University, 1896), p. 4; *Third Biennial Catalogue of the Dakota University, Mitchell South Dakota, 1889-91* (Mitchell: Mitchell Printing Company, 1891), p. 27. Stout's service to Urania lasted nearly his whole professional life. An astronomy class that includes surveying first appears in the aforementioned college catalog. He taught astronomy until he died, around thirty-seven years later.



Levi Asa Stout was an instrumental figure in DWU's history. He served as president and taught astronomy, among other subjects.

the directors replaced him with William Graham, a salesman. Graham's eulogy three decades later speaks to his lasting impact: "When Dr. Graham was born, the genii hovered over his cradle and kissed the mark of genius onto his brow; when he died, the seraphim hovered over his bier and wafted his soul into realms of eternal joy."⁴

While Graham schmoozed donors at DU, to the south, rival Yankton College used donor funds to pursue the stars. The Mitchell newspaper reported that at the time of its purchase in 1888, Yankton's observatory telescope was valued at \$15,000, or \$250,000 in today's dollars. In 1894, the college spent \$2,800 on a new brick observatory to house the state-of-the-art Warner and Swasey refracting telescope. The instrument boasted a seven-inch lens. Yankton's brick building and dome were the envy of other colleges, as was its spectacular telescope. Archelaus Cummins Dakin, who was a foreman for a carpet mill machine shop in Clinton, Massachusetts, a patent holder, and a bank director, provided the telescope. He purchased the instrument for his personal use and later sold it to Yankton College for \$1,600, in line with the catalog prices of the day. Since Graham was unable to secure a similar deal, he crafted an artful piece of salesmanship to compete with Yankton.⁵

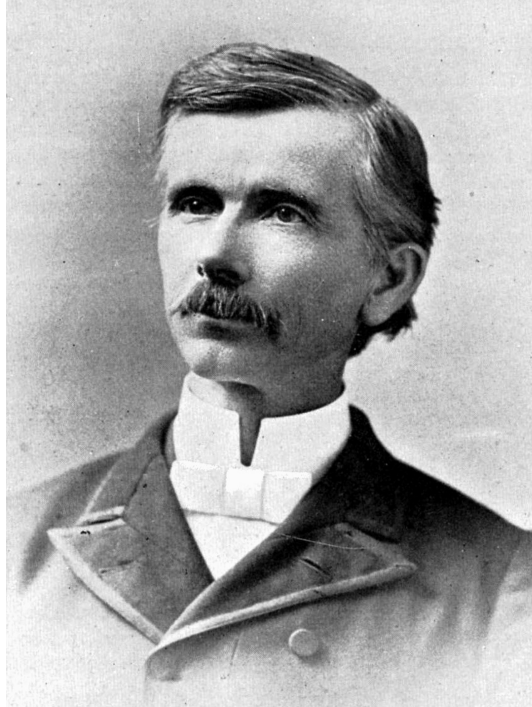
Who could blame him? A major responsibility of college presidents is to fundraise, balance budgets, and implement new projects. For Graham, the job was especially hard, since most South Dakota residents lacked well-established, generational wealth. To impress donors, he had to work diligently and accept any funds he received. Graham's efforts to procure and promote a telescope for DU provide a textbook case of how colleges expand their campus and reputation.

Though he was no sideshow huckster, Graham somewhat resembled

4. O. W. Coursey, *A History of Dakota Wesleyan University for Fifty Years (1885-1935)* (Mitchell: Dakota Wesleyan University, 1935), pp. 61-69.

5. *Mitchell Daily Republican*, 3 Sept. 1888; "Before Sputnik And NASA, Yanktonians Explored The Cosmos," *Yankton Daily Press & Dakotan*, 17 Mar. 2003; William John McMurttry, "Yankton College: A Historical Sketch," (master's thesis, Yankton College, 1907), p. 87; Andrew E. Ford, *The Origin of the Town of Clinton Massachusetts 1653-1865* (Clinton, Mass.: Press of W. J. Coulter, 1866); *Catalogue Optical, Physical, Astrophysical and Astronomical Instruments* (Pittsburgh: Johan B. Brashear Co., 1905), pp. 12-13. This catalogue lists a Warner and Swasey six-inch scope at \$1,590 and an eight-inch version at \$3,400. The \$1,600 cost falls within that bracket, which Graham may have known. Edward L. Clarke of Howard, South Dakota, donated the funds to build the observatory in memory of his father.

As president of the university, William Graham led the fundraising campaign for the observatory project.



one. On 13 June 1898, a lecturer drew crowds to Mitchell. After the presentation, Graham took the stage and appealed to the audience for funds to purchase a telescope. To ease the fiscal burden, he asked Mitchell High School to share the costs. As the *Pierre Capital Journal* reported, “He did not entertain any idea but what the project could be carried to a successful conclusion and would be ready for use at the opening of the fall term of both institutions.” The same article portrayed a stampede to fund the scope. E. J. Quigley, the superintendent of Mitchell’s schools, “had started the list with \$50 and that he [Graham] would follow suit with a like amount and that the students of the University would pledge \$50 more, making a total of \$150 to start with. He secured \$80 more by subscription and the balance will be raised during the summer.”⁶

Building a temple to Urania was quite expensive. According to local newspapers, “The telescope and observatory will cost completed about

6. *Pierre Capital Journal*, 17 June 1898.

THE TELESCOPE

We are intending to secure.



The above cut represents a reflector telescope 10 1-4 inch aperture. The university and high school are making a joint effort to secure this much needed instrument. It will require \$600 to purchase the instrument and build a suitable observatory. The funds are to be raised by private subscription. Each person subscribing not less than two dollars will be entitled to view tickets for use of the telescope. This is a popular move and should receive the hearty endorsement of the citizens of Mitchell and Davison county. Some two hundred dollars have already been subscribed. Get ready to meet a solicitor with a prompt subscription and this much needed equipment for college and high school will be secured before the close of the fall term. Further information will be given in a short while.

Graham put this advertisement for the telescope in the *Mitchell Daily Republican* to gain community support for the project.

\$600 and the people who contribute to its construction will be given view tickets entitling them to view the heavens above at a mere nominal cost. The telescope will be of the reflective pattern and will be 12 inches in diameter.”⁷ Owning a twelve-inch instrument could give Graham bragging rights, since Yankton’s spyglass had only a seven-inch lens. Yet, the true price for his twelve-inch reflector was \$1,850 when

7. Ibid. Yankton’s refracting scope looked like a traditional spyglass with a front lens. The reflecting telescope Graham had in mind used a mirror to gather light. For a given size, reflectors cost much less than refractors.

mounted with a clock drive like Yankton's.⁸ If we add the observatory building, the bill to study the stars would be astronomical. Quigley, however, had only given the school board an estimate of \$650.⁹ He essentially baited the school board and public with an impossibly low price tag while downplaying the valuation of Yankton's telescope. Despite these tactics, the school board had only raised twenty dollars by September 1898.¹⁰

Even with these setbacks, Graham and Quigley would not quit. On 10 October, they bought a newspaper advertisement picturing a simple, ten-inch reflecting telescope with a price tag close to Quigley's original estimate. Interested parties could purchase "view tickets" costing \$2.00 each, though no record of ticket sales exists.¹¹ On 14 January 1899, the *Mitchell Daily Republican* reported, "The telescope is here at last and will be placed in an observatory on the hill."¹²

The observatory, an octagonal shed, was not built on the hill where Dakota University sat. Instead, it was constructed lower and to the north, beside a pest house used for quarantine, two years later than promised. The scope, with a mere six-and-a-half-inch lens, looked nothing like the one that had been advertised. While it resembled Yankton's instrument, it was far less powerful. DU's telescope lacked a finder scope, setting circles, and a clock drive to follow the nightly motions of the stars.¹³ At the observatory's grand opening on 31 August 1900, only seven people viewed the moon, despite the free admission.

8. *Catalogue Optical, Physical, Astrophysical and Astronomical Instruments*, p. 20. The price for this reflecting scope would have been slightly less due to inflation in catalog prices, about \$1,600.

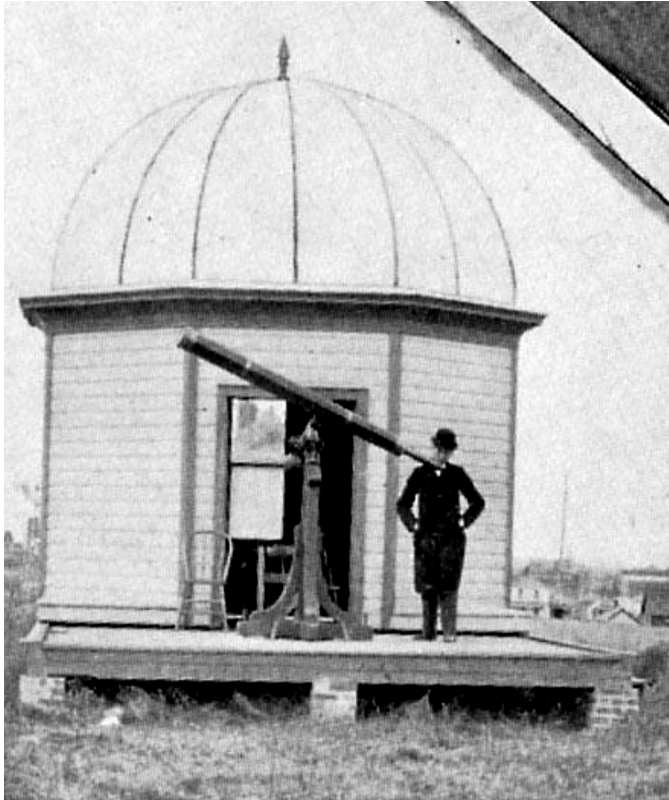
9. *Mitchell Daily Republican*, 30 Mar. 1898. "The probable cost of the telescope will be about \$650, including the cost of a building in which to place the instrument for observation purposes, and it is the plan to have it in operation for the opening of the fall term."

10. *Ibid.*, 2 Sept. 1898.

11. *Ibid.*, 10 Oct. 1898. It cost \$775 in the 1906 Brashear catalog; an inflation calculator puts the scope at \$714 in 1898. One assumes that the observatory would cost very little—as it probably did in the end.

12. *Ibid.*, 14 Jan. 1899.

13. Violet Miller Goering, *Dakota Wesleyan University: Century I* (Sioux Falls: Pine Hill Press, 1996), p. 15; McLaird, *Dakota Wesleyan Memory Book*, p. 42. Only one picture of the observatory and its telescope survives. As a university catalog described it, "A six and one half inch telescope is located on the campus at a convenient distance." *Dakota Wesleyan University, Catalog, 1910-1911*, p. 51.



This photograph captures the DU observatory in 1901. The telescope had a smaller lens than the one at Yankton College.

As the *Mitchell Capital* described the scene, “When the telescope bought by the University and high school was erected on the hill on the south side of town it was the supposition that the people in general would be glad of the opportunity to take frequent gazes at the starry heavens, but from the lack of patronage shown toward the enterprising gentlemen who put the instrument there it is evident that people do not care to investigate the heavens.”¹⁴

One might call Graham out of touch for campaigning for a product that had such little popular support. Yet, the beauty of the night sky is an excellent part of any college education and, as is so often the case

14. *Mitchell Capital*, 7 Sept. 1900.

with gifts to small schools, this one was extensively used. Since most university students took one or two astronomy courses, perhaps fifty people per year entered the observatory where Stout revealed Urania's glory: the cratered moon and the rings of Saturn, Jupiter, and Venus.¹⁵

I imagine that Stout, as an amateur astronomer, relished his new telescope. He may have been less fond of the observatory, for its dome lacked a slit. The entire building, a 14 by 14 foot structure, had to be wheeled away from the optical instrument in order to reveal the sky. As with the shelter, the telescope's mounting was also poorly designed, posing additional challenges. Since the instrument's eight-foot tube turned on a central pivot, Stout was almost on the floor when he looked vertical.¹⁶ By 1918, the professor, now sixty-two years old, had spent eighteen winters heaving wood and metal, kneeling to Urania, and freezing his bones. Campus records indicate that the telescope was removed from the observatory that same year; when an immortal is your lover, you are bound to wear out.

The observatory not only housed academic pursuits, but also amorous ones.¹⁷ As the campus newspaper reported of the decaying octagonal shell, "It furnished an ideal place for campus lovers, and its venerable walls could have revealed endless stories of romance and tenderly spoken words whispered by man and maid as they sat in the shadows of the massive architecture."¹⁸

Ultimately, such romancing came to an end. In 1920, Dakota Wesleyan won the state basketball championship over Yankton College. As part of the celebration, several students, led by alleged arsonist Herbert Emery, hacked the observatory into boards and sent it crackling to the

15. The catalog says, "A six-inch telescope permits an interesting study of the moon, Venus, and Jupiter and Saturn" (Dakota Wesleyan University, *Catalog 1918-1919*, p. 51). Nothing else is mentioned; probably because not much else was seen. With its superior Warner and Swasey mount, only Yankton's scope could easily point to star clusters, double stars, and nebulae.

16. *Pierre Capital Journal*, 4 Aug. 1899; *Phreno Cosmian*, Feb. 1899. The focal length is stated as eight feet. The tube would have been slightly longer.

17. Jarvis Harriman, *The Man from the Hills: A Biography of Leland Davidson Case* (Canyon, Tex.: Westerners International, 1994), pp. 21-22. Leland Case participated in a secret society meeting in "the 'dome shaped shrine' otherwise known as the observatory." Case enrolled in the 1918-1919 school year and stayed for two years.

18. *Phreno Cosmian*, 4 Mar. 1920.



The author is pictured here in DWU's current observatory, which features a telescope with an eleven-inch lens.

stars. The campus newspaper rubbed in the observatory's misfortune, noting, "Some of our neighborly institutions of learning criticized Wesleyan for burning the old observatory upon the victory over Yankton College so we upon their request will refrain from such disgusting actions and be content to blow our [new compressed air] whistle."¹⁹

The Gay Nineties birthed the observatory, while the Roaring Twenties burned it down. Graham passed on in 1924, as did Stout two years later.²⁰ In their ephemeral observatory, we see three beings etched into history. First, Urania: her sky was not just a circus tent where people paid for views. Second, Graham: he made good on an impossible

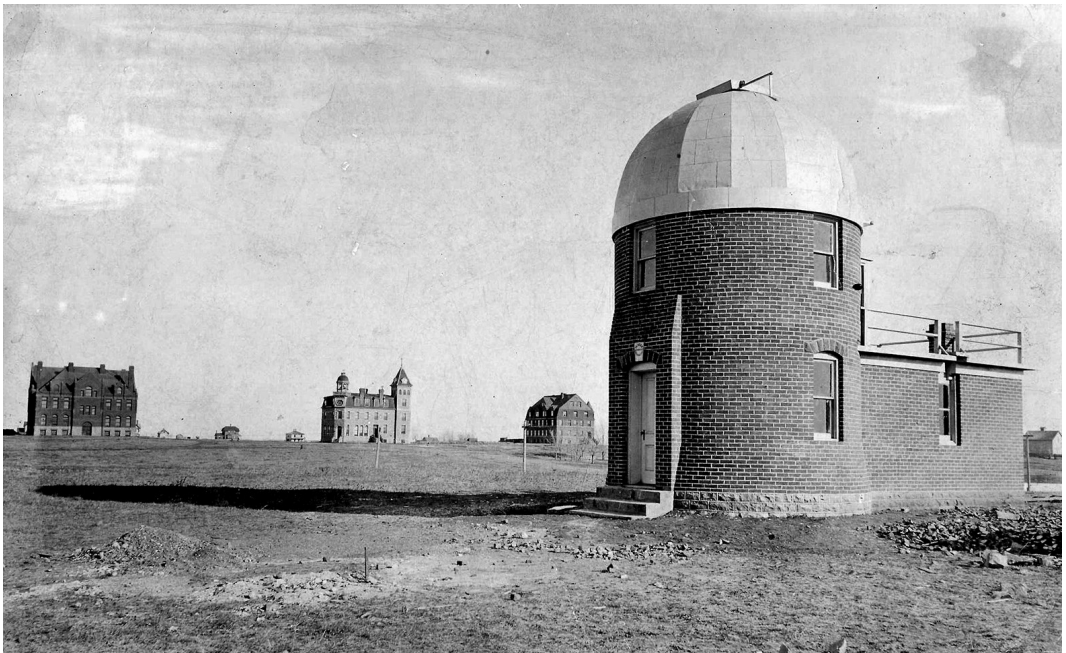
19. Ibid., 13 Mar. 1920.

20. *Cedar Rapids (Iowa) Gazette*, 9 May 1925; *Mitchell Evening Republican*, 1 Feb. 1926.

dream and brought discovery to DU. Lastly, Stout: he didn't speak up when Graham promoted far more than he could deliver. Still, Graham's scheme bore fruit.

Yankton lost the game, but kept the stars; its brick observatory still stands on the grounds of a minimum-security federal prison.²¹ In 1994, a century after Graham's hiring, a new Dakota Wesleyan University observatory—a shed with a removable roof that houses an eleven-inch scope—opened its doors. The telescope's aperture, its opening to the sky, is one inch smaller than that of Graham's dream. The goddess is honored and respected and, again, she works her wiles on scholars. When I teach the stars, my class is packed with eager eyes.

21. "Before Sputnik And NASA."



Yankton College's brick observatory, pictured here in 1895, one year after it was built, has withstood the test of time.

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On the cover: Several climbers scale a rock face on Cowboy Hill in Rapid City. The area has become a world-class rock climbing destination.

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