

## The Yerkes Group Photo at Wadesboro: Fixing the Date and Identifying the Unknowns

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The solar eclipse of May 1900 came at a time when American astronomy was asserting itself on the world stage. The early generation of home-grown astrophysicists, the likes of Charles A. Young and Samuel P. Langley, was giving way to the new breed, led by George Ellery Hale. By 1900 Hale had founded the AAS, started the *Astrophysical Journal*, and built his first great observatory at Yerkes. The 1900 eclipse, visible along a line from New Orleans to Norfolk, gave Hale an opportunity to orchestrate a coordinated effort to attack the eclipse with all available American resources.

Parties were dispatched throughout the American south, but for a variety of reasons, including accessibility, weather prospects, altitude of the sun, and duration of totality, along with the local hospitality, Wadesboro, NC was the station of choice for many groups and individuals.<sup>1</sup> Major parties from Yerkes, the Smithsonian Institution, Princeton, and the British Astronomical Association found their way to Wadesboro along with dozens of other notables. The list of observers in Wadesboro includes, in addition to the astronomers of note, four current or future college presidents, five future Deans or chief academic officers, five future heads of significant government bureaus, several directors and chairs of important national commissions, societies, and institutes, four aviation pioneers, and world famous magician.

During the days before the eclipse itself, as the observing stations were being prepared, the Yerkes group assembled for a group photo. This photograph is reproduced in *Pauper and Prince: Richey, Hale & Big American Telescopes*, by Don Osterbrock (below left) and in William Sheehan's biography of E. E. Barnard, *The Immortal Fire Within* (below right).<sup>2</sup> George Ellery Hale, George Willis Richey, and Barnard are all in the photo, as are Yerkes astronomers Ferdinand Ellerman and Edwin B. Frost. In both books, these five are identified, but the others are not. The identifications are as follows (L-R): ?, ?, G. W. Richey, Ferdinand Ellerman, ?(seated), G. E. Hale, ?(seated), ?, E. B. Frost, E. E. Barnard.



Yerkes Observatory solar eclipse group, Wadesboro, North Carolina, 1900. Richey is third from left; to the right are Ellerman, then Hale (standing). Frost and Barnard are standing on the far right. Courtesy of Yerkes Observatory.



Yerkes Observatory solar eclipse expedition, Wadesboro, North Carolina, 1900. Richey is third from left; standing immediately to the right of him are Ellerman and Hale. Frost and Barnard are on the far right. Yerkes Observatory

So who are the others in the photograph? Wadesboro residents? Other astronomers who worked with the Yerkes party in Wadesboro? Identifying the unknowns requires making a list of likely candidates and obtaining verification from there.

The first source of information is Hale's Yerkes report, published in the July 1900 issue of *The Astrophysical Journal*. In it, Hale lists Richey, Barnard, Frost, and Ellerman as being involved in the party's observations, along with Albert S. Flint of the Washburn Observatory of the University of Wisconsin, Chicago surgeon George S. Isham, "who contributed to the fund... and gave most valuable assistance in the work of preparation"

for the expedition, and “Mr. Wolff, janitor of the Yerkes Observatory.” At the close of the report, Hale also acknowledges the contributions of Harry S. Goodwin, Frank A. Laws, and Arthur A. Noyes. Two Wadesboro residents mentioned in the report are Mr. John Leak, who contributed the grounds for the Yerkes and Smithsonian stations, and Mr. William Brasington, a local building contractor. C. G. Abbot (Smithsonian Institution), C. E. Mendenhall (Williams College, working with the SI party) and G. R. Putnam (Coast and Geodetic Survey, also with the SI party), are also noted.<sup>3</sup>

We assumed that this list likely included the unknowns in the photograph, and it was just a matter of tracking them down.

There are a few clues to consider when puzzling through the identification problem.

- (1) Seven of the party, including all of the previously identified Yerkes staff, are wearing (or holding, as is the third man from the right) the same kind of hat.
- (2) The two persons on the left have a generally rough appearance not shared by the gentlemen astronomers in the right of the image.
- (3) Two persons are seated at the front of the group, and they are not wearing the same style hat noted above.

Noting that Hale lists a local contractor as making an important contribution to the expedition, one of us (GR) traveled to Wadesboro to try to identify one of the unknowns in the photograph. Brasington Inc., a local hardware store, is still owned and staffed by descendants of the contractor who helped build the Yerkes, Smithsonian, and Princeton stations. (Note that “Brasington” is the correct spelling – Hale misspelled it in his report.) Once the right members of the Brasington family were shown the photo, “Uncle Billy” was identified with certainty as the second man from left – the tall man wearing the dark hat and the overcoat. Records in the Smithsonian archives indicate that Brasington charged them \$190 for \$236 worth of goods and services in outfitting the site with sheds and piers.<sup>4</sup>

The Yerkes photographic record of the expedition includes images of Brasington and the man left of him in the group photo building the structures to house the instruments for observing the eclipse, and of this other man working in a makeshift shop in a small shed, with his “eclipse hat” at his side (right, courtesy Yerkes Observatory, dated May 23<sup>rd</sup>). From this, we guessed that he might be an assistant of the Brasington company, but could find nothing to confirm this. But considering that this person is wearing the “eclipse hat” that all the other Yerkes staff are wearing, it is more likely that he is Mr. Wolff, the janitor, carpenter, and handyman at Yerkes at the turn of the century. Hale’s correspondence indicates that Ritchey, Barnard, and Wolff traveled to Wadesboro in early May to prepare for the observations. Notes from them indicate that they secured the use of a small shed adjacent to the observing grounds, and the Yerkes archives include a number of receipts for items Frank Wolff purchased in Wadesboro for the construction.<sup>5</sup>



We consulted with Don Osterbrock, whose publications about Hale, Ritchey, and the history of Yerkes made him an authority on this era, for advice about the other three in the photo. He suggested that Flint’s key role in the party certainly meant that he might have been included, and noted that the photo of Flint that accompanies the obituary article penned by Joel Stebbins for *Popular Astronomy* in 1923 bears some resemblance to both of the unidentified white-suited men in the group photo, and that Flint also appears as a face in the back of the group photo taken on the front steps of Yerkes at the 1897 dedication.<sup>6</sup> Subsequent inquiry to the University of

Wisconsin, where Flint was a longtime faculty member, revealed that the photo used in the *Popular Astronomy* article is ca. 1915, and that no other images of him exist in their files.<sup>7</sup>

Osterbrock also suggested that Dr. George Snow Isham, a prominent Chicago doctor who summered in Williams Bay and is mentioned frequently in Frost's autobiography, might be the man in the gray suit seated in front<sup>8</sup>. Isham contributed to the funding of the eclipse expedition, and worked to help Hale secure good rail rates southward. Isham was the nephew of Helen E. Snow, a wealthy Chicagoan that Hale convinced to fund the horizontal solar telescope that Hale initially set up at Yerkes and moved to Mt. Wilson in 1904. (The precursor of this instrument was used for the Wadesboro observations.)<sup>9</sup> Correspondence between Isham and Hale indicates that the doctor arrived in Wadesboro on May 21<sup>st</sup>.<sup>10</sup>

Finally, Osterbrock proposed a new possibility for the other unknown person. He suggested that Dartmouth astronomer E. F. Nichols, who worked with Hale the summer before the eclipse on methods of measuring heat radiation from astronomical objects, would have been an important contributor to Hale's efforts to measure the heat of the corona at Wadesboro.<sup>11</sup> An examination of other photographs of Nichols in the Yerkes archives does not rule him out, and correspondence between Hale and Nichols leading up to the eclipse clearly indicate that they were planning to be together to make the observations. Nichols, however, is never mentioned in Hale's report, and a letter from Nichols to Hale in June 1900 laments his not being able to be there for the eclipse, so despite his promise, Nichols cannot be in the photo.<sup>12</sup>

We were stuck at this point for quite some time. Examining an annotated map of the Smithsonian/Yerkes grounds published in the 1900 Smithsonian Report of the Secretary,<sup>13</sup> we worked though all of the persons mentioned near the Yerkes station. A photograph of the station, courtesy of the Yerkes Observatory Archives, is included below.



In addition to the large Smithsonian party and Mr. Putnam, there was J. B. Coit of Boston University, Professor Quimby of Berwyn PA, and S. B. Elliot of Reynoldsville PA.<sup>14</sup> We also obtained a letter from Prof. F. P. Venable of the University of North Carolina that indicated that he was planning to help the Yerkes party at the eclipse.<sup>15</sup> For each one of these, we either found no confirming photo, or found photos that clearly ruled him out. Hale's MIT colleagues Goodwin, Noyes, and Laws were also in Wadesboro, but other photographs of Goodwin and Noyes rule them out as well.<sup>16</sup> We could not locate an image of Laws, but it is doubtful that he would be in the photo without the others. At this point, we were leaning toward Flint as one of the unknowns – possibly the one in the back – and Isham as one of the men seated in front.

A breakthrough finally came from a source outside the Yerkes/Smithsonian grounds. The Princeton and BAA parties were stationed a quarter of a mile from Hale's group, but members of the Princeton expedition took hundreds of photographs while in town, many of which were assembled into an album by Charles A. Young, now held in the Rauner Archives at Dartmouth.<sup>17</sup>

One photograph in the collection clearly shows the two seated gentlemen in the Yerkes photo. In Young's hand underneath the photo is written "Nyland & Wilterdink." The mystery men in the front of the Wadesboro group are the Dutch astronomers A. A. Nijland and J. H. Wilterdink, who visited Wadesboro on 20-22 May to examine the preparations before traveling on to Barnesville, Georgia to view the eclipse with the Lick Observatory party. They were planning a major expedition to Sumatra for the 1901 eclipse, and wanted to learn from the American efforts in 1900.<sup>18</sup>

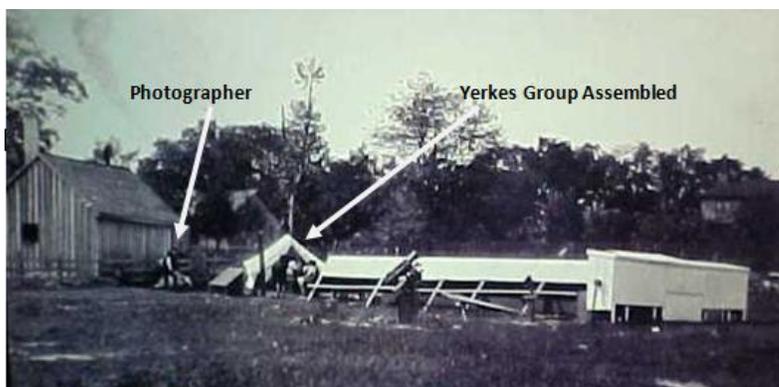
This is where we stood in January 2006 when a preliminary version of this article was presented at the 207<sup>th</sup> meeting of the American Astronomical Society. All but one of the men in the photo were identified, with Flint or Isham as the most likely candidates for the unknown astronomer.

Then in December 2006 we noticed that the Princeton Libraries had developed a web page showcasing the Wadesboro expedition, including a set of 29 images identical to some in the Young album at Dartmouth. One Princeton image was labeled "Camera (Prof Flint)".<sup>19</sup> The same photo in the Dartmouth Young album had no clear caption on its pages. The dress, build, and features of the man identified as Prof Flint did not match those of the unknown astronomer in the Yerkes group photo, so our attention turned to Isham. In January 2009 we discovered a collection of Isham Family Papers held at the Newberry Library in Chicago. We determined from the staff there that they were in possession of a portrait photograph of George Snow Isham, and so we asked them to look at the Yerkes group photo to see if they recognized Isham. They identified our unknown astronomer, "the gent in the bow tie who is holding his hat" as Isham.<sup>20</sup>

The short span of time in which Nijland & Wilterdink were in Wadesboro, coupled with Isham's schedule, helps us fix the date of the photo. C. A. Young's diary entry for May 20<sup>th</sup> indicates that the Dutchmen arrived that day and he met them and took them to see the Smithsonian/Yerkes stations.<sup>21</sup> Since Isham arrived on the 21<sup>st</sup>, and Nijland and Wilterdink left on the 22<sup>nd</sup>, the photo must have been taken on one of those days. We have not yet secured train schedules for Wadesboro in May 1900, so it is unclear how long on the 22<sup>nd</sup> the Dutchmen were on site.

A clue to help fix the date comes from the fact that there are no clear shadows around the Yerkes station in the photograph. Some of the other Wadesboro site photos, most of which were taken during the days before the eclipse by E. E. Barnard, show distinct shadows, but the only definite shadows in this image are in the distance – on houses in the background and around the Smithsonian sheds. Again, Young comes to the rescue. He kept regular weather notes in his diary, and the entries show a "Magnificent day" on the 21<sup>st</sup>, and "Fine Day, slightly hazy" on the 22<sup>nd</sup>.<sup>22</sup> Given this, it is perhaps more likely that the Yerkes group photo was taken on 22 May 1900. If Young's magnificent conditions indicate a clear sky, we would expect sharp shadows throughout the image. Thus the slightly hazy skies of the 22<sup>nd</sup> are a better match for the conditions shown in the photograph. Perhaps the group assembled for the photo when Nijland and Wilterdink stopped by for a last examination of the station before leaving for the train station and their ultimate observing destination in Georgia.

Interestingly, there is a photograph in Young's album (right) that quite possibly shows the Yerkes group photograph in the process of being staged. It is taken from a distance across the grounds, and shows the Yerkes station with the group assembled between the two tents, and a photographer (who resembles Flint) off to the left.<sup>23</sup>



In conclusion, our research indicates that the well-known Yerkes eclipse party photograph from the Wadesboro eclipse expedition was taken on 21 or 22 May 1900, and the members of the group are (L-R):

**Frank Wolff, William Brasington, George Willis Ritchey, Ferdinand Ellerman, Albertus Antonie Nijland (seated), George Ellery Hale, J. H. Wilterdink (seated), George Snow Isham, Edwin Brant Frost, Edward Emerson Barnard.**



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We would like to thank Richard Dreiser and Judy Bausch of Yerkes Observatory Archives for their assistance on this project. Don Osterbrock's insight and suggestions along the way were invaluable, and much of this analysis could not have been done without the documents found for us by Sarah Hartwell of the Rauner Special Collections at Dartmouth. This research was supported in part by the Herbert C. Pollack Fund of the Dudley Observatory.

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<sup>1</sup> For a discussion of factors leading to the choice of Wadesboro by the various parties, see English, T. and Riggsbee, G., "The Road to Wadesboro: Site Selection for Expeditions to Observe the Eclipse of 1900," *Bulletin of the American Astronomical Society*, Vol. 33, p.1331.

<sup>2</sup> Osterbrock, Donald E., *Pauper & Prince: Ritchey, Hale, & Big American Telescopes*, University of Arizona Press, Tucson (1993), p. 54; Sheehan, William, *The Immortal Fire Within: The Life and Work of Edward Emerson Barnard*, Cambridge University Press, New York (1995), p. 323. A high resolution scan of this image "Yerkes Observatory party at observing site in Wadesboro, North Carolina," is available online at the Huntington Digital Libraries Collection, <http://hdl.huntington.org/cdm/singleitem/collection/p15150coll2/id/1097/rec/4> (Accessed 1 Jul 2014).

<sup>3</sup> Hale, *Ap.J.* 12, 80 (1900).

<sup>4</sup> Abbot to Langley (3 May 1900), Smithsonian Institution Archives, Record Unit 31, Box 24.

<sup>5</sup> Barnard to Hale (11 May 1900), Box 17 Folder 6, Ritchey to Hale (12 May 1900), Box 18 Folder 2, 12 May 1900, Ellerman to Hale (12 May 1900), Box 17, Folder 9, Director's Papers, Correspondence, Yerkes Observatory Archives.

<sup>6</sup> Osterbrock, Donald E., private communication; Stebbins, Joel, *Popular Astronomy*, 31, 369 (1923).

<sup>7</sup> *The Badger*, Vol. 29, p. 13, University of Wisconsin Digital Collections.

<sup>8</sup> Osterbrock, Donald E., private communication; Frost, Edwin Brant, *An Astronomer's Life*, Houghton Mifflin, New York (1933).

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- <sup>9</sup> Hale, G. E., "The Solar Observatory of the Carnegie Institution of Washington," in *Contributions from the Mount Wilson Observatory / Carnegie Institution of Washington*, vol. 2, p 9; Osterbrock, Donald E., *Yerkes Observatory, 1892-1950: The Birth, Near Death, and Resurrection of a Scientific Research Institution*, p. 42.
- <sup>10</sup> Isham to Hale (8 May 1900 and 14 May 1900), Director's Papers, Correspondence, Box 17, Folder 9, Yerkes Observatory Archives.
- <sup>11</sup> Osterbrock, Donald E., private communication.
- <sup>12</sup> Hale to Nichols (11 April 1899), Letterbook 6, page 605-6; Hale to Nichols (14 June 1899), Letterbook 7, p. 156; Nichols to Hale (19 June 1900), Director's Papers, Correspondence, Box 18, Folder 1, Yerkes Observatory Archives.
- <sup>13</sup> Langley, S. P., "Report of the Work of the Astrophysical Observatory for the Year Ending June 30, 1900," Plate VIII, in *Annual Report of the Board of Regents of the Smithsonian Institution for the Year Ending June 30 1900*, GPO, Washington, 1901, p. 99-109
- <sup>14</sup> *Annual Report of the Board of Regents of the Smithsonian Institution for the Year Ending June 30, 1900*, GPO, Washington (1901), Plate viii.
- <sup>15</sup> F. P. Venable to his daughter, 27 May 1900, Venable Papers, #4368, Folder 45, Southern Historical Collection, Manuscripts Department, Wilson Library, University of North Carolina.
- <sup>16</sup> Wright, Helen, Warnow, Joan N. and Weiner, Charles, *The Legacy of George Ellery Hale: Evolution of Astronomy and Scientific Institutions, in Pictures and Documents*, MIT Press, Cambridge(1972), p. 40.
- <sup>17</sup> "Photographs of Princeton Eclipse Expedition to Wadesboro, North Carolina, May, 1900." Box 10, Folder 18, Charles A. Young Papers, 1853-1908, Special Collections, Manuscript ML-49, Dartmouth College Archives.
- <sup>18</sup> Nijland to Hale (18 April 1900), Director's Papers, Correspondence, Box 18, Folder 3, Yerkes Observatory Archives.
- <sup>19</sup> "Now and Then: Solar Eclipse Expeditions at Princeton", <http://astrolib.princeton.edu/spotlight/> (Accessed 26 Dec 2006). The source for this article is Libbey, William, "Album of photographs of the Princeton eclipse expedition to Wadesboro, N. C., in 1900," Lewis Library, Princeton University.
- <sup>20</sup> Hinderliter, Allison, private communication. The identifying photo is in Isham Family Papers, The Newberry Library, Chicago, Box 1, Folder 3.
- <sup>21</sup> C. A. Young , 1900 Diaries (20 May), Charles A. Young Papers, 1853-1908, Special Collections, Manuscript ML-49, Dartmouth College Archives.
- <sup>22</sup> C. A. Young , 1900 Diaries (20-22 May).
- <sup>23</sup> "Photographs of Princeton Eclipse Expedition to Wadesboro, North Carolina, May, 1900."