

## **An Appreciation of Clinton B. Ford and the AAVSO of Fifty Years Ago**

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**Abstract** This is a rather personal story about Clinton B. Ford, my boyhood mentor in astronomy, and about the influence of the AAVSO and Clint on my life and career. While much has been written on Clint, this addresses the man, and his kindness.

### **1. The start**

Clint and Alice Ford (Figure 1) lived on Loomis Road in Suffield, Connecticut, a 300-year-old tobacco farming town on the Massachusetts border, and on the West Bank of the Connecticut River. They were neighbors of my family, living just 0.4 mile to the East. Clint worked for a company that made photographic developing equipment in nearby Springfield, Massachusetts, owned by another Suffield resident, Henny Smith. I recall that Clint was vice president and also did engineering at this company, yet due to Clint's father's foresight in buying early IBM stock, part of his life was managing this investment. However, his love was clearly astronomy and in particular the AAVSO.

The Fords became great friends of my mother and grandmother, and by 1953 it was standard Sunday afternoon fare for either Clint and Alice to visit us, or for us to visit the Fords. This always pleased me, especially visiting the Fords. My interest in the night sky started at age eight. Part of this was a childlike fascination with the radio show *Buzz Corey and the Space Patrol*. My little brother and I had learned to climb out on the roof of our old farmhouse after mother thought we had gone to bed and lie there, with blankets, looking up. It was two or three years later when the close friendship between the Fords and the Hulls matured. I remember sitting in the Ford's living room, full of adult talk by the others, and being quite happy thumbing through Clint's *Sky & Telescope* magazines. Clint would notice, and was always happy to answer questions. And I asked many. Then off to the observatory we would go to look at hardware, always a special pleasure.

The AAVSO was integral to Clint's and Alice's social life. I had the opportunity to meet and see frequent Suffield guests Margaret and Newton Mayall, Claude Carpenter, Cy Fernald, and others. Later Clint generously donated a 4-inch Unitron Refractor to my high school, Suffield Academy. I

became the first president of the School's Astronomy Club, and enjoyed assembling the scope and using it for the first time.

It was rather cool to be interested in astronomy then. After all, this was the start of the space race, with Sputnik being all the talk in the fall of 1957 (Figure 2). Starting in 1955, some of my interest had diverted into rockets, an interest which Clint did not share. With my little brother and best friend, we learned the basics of rocket design, nozzles, and how to pour a fuel core and had some successes, a little like the film *October Skies*. We also had a fantastic failure which pretty much ended my rocket career. Fortunately no one was hurt.

When I was fifteen, Clint nominated me to membership in the AAVSO, and there was little surprise that I was elected to membership at the 48th Annual Meeting at Nahant, Massachusetts, October 1–4, 1959. The meeting was coincident with the October 2nd Sunrise Total Eclipse which was “rained out.” I watched what I could of it through Suffield clouds.

After making some variable star observations, in a period competing with time for playing sports, and crushes on girls, the momentous 50th Annual Meeting at Harvard College Observatory came up in October 1961. This was the first trip on my own, taking a bus from Springfield to Boston, the MTA to Harvard Square, and a very long cab ride to my very nearby hotel. It also involved a choice. I was on the football team, and missing a game would mean being dismissed from the team. I did the right thing and never had a single regret.

I loved being at the 50th Annual Meeting (Figure 3), and regret that I could not be at the 100th Annual Meeting. I recall seeing Harlow Shapley and Donald Menzel and other great names in 20th Century astronomy there. I was somewhat familiar with these from reading *Sky & Telescope*, and the books I had begun to collect. I also recall meeting Constantine Papacosmos of Montreal, just a few years older than I and a person with much enthusiasm. Clint kindly kept an eye on me from a distance but let me have my own experience. I still recall the dinner speaker making the classic joke over dessert of this “seeming to be a meeting of a gastronomy society” rather than an astronomical society. Overall this was a great experience and the AAVSO enriched my love of astronomy.

## **2. Clint's Suffield observatory**

Clint's home observatory was a marvel of intention and practicality. While Clint had the means to have much more, his observatory was ideally matched to his interest. He described the utility of the roll-off roof design, allowing him to nimbly move about the sky. Suffield of the late 1950s still had fairly dark skies, and wind was not much of a factor. His telescope of choice was a 10-inch Newtonian reflector (Figure 4), built by someone else and acquired by him. Clint explained to me that there are two kinds of astronomers: those who develop telescopes and do little astronomy and those who do astronomy with telescopes developed by others. I had not realized then that this lesson had

special relevance for me. After graduate school, I elected to work in aerospace developing telescopes and instruments, largely for spaceborne projects.

Rather than an optical finder, Clint preferred a piece of tubing in the “pea-shooter” configuration. Clint understood in detail everything about the observatory. He knew optics, to the level that he could sit down with a pad of paper and explain the optical difference between the war surplus Erfle eyepiece he loved and his Kelner eyepieces. Clint would spend hours teaching me about telescopes, both in showing me equipment in the observatory, and in chats in his living room. The latter was inevitable as I devoured his *Sky & Telescopes*, and wanted to know about everything. Clint taught me all, from the basics of astronomy to the utility of rare earth glasses in optical design. This interest in design became more intense when I encountered the *Amateur Telescope Maker* three-book series by Albert G. Ingalls. While Clint’s interest was clearly in observing, he had a consummate knowledge of telescopes and was very generous with his time as I asked a thousand questions.

Clint valued his clear night observing time, and had a schedule of what observations he would want to make in each month of the year. Nevertheless, he would make time to not only have Cub Scouts visit, but to teach me how to observe, how to hold a chart correctly, find objects in the sky, and use averted vision to see faint objects. On that note, Clint had a “lazy eye,” and my family had concern that this was an artifact of observing at the telescope. Nevertheless, they, too, continued to encourage me with astronomy. I started saving up the sum of \$33.75 to buy a 3.5-inch Skyscope. While a very simple  $f/11$  Newtonian telescope, Clint felt the optics were good and that it would let me do variable star observations on brighter objects. I still have this telescope.

### **3. Clint the observer**

Astronomers come in various flavors. I have met many over my career, both professional and amateur. Of these only a handful had a love for being at the telescope the way Clint did. In fact, of the astronomers I have known, I think only University of Pennsylvania Professor Leendert Binnendijk matched Clint’s love of being beside the telescope. Clint was happiest as he observed variable stars, and moved his telescope about with a sense of complete familiarity with the sky. His proficiency at variable star observing is written into the records of the AAVSO. Clint was an amateur in the best sense: one who is motivated by his love for the field. He also loved the sense of contributing in a meaningful way to the understanding of time-domain astronomy, variable stars. He often led campaigns on interesting faint stars within reach of his telescope. I think of Clint also as a professional, including having received a M.S. degree in Astronomy from the University of Michigan, but more so because of his consummate knowledge of what he was doing. He clearly had the stuff the best professional astronomers are made of.

I would like to report that among the equipment Clint showed me was a photoelectric polarimeter he had developed in the late 1940s, roughly contemporary with the work on the interstellar medium by Hiltner and Hall and the predictions of Chandrasekhar of intrinsic polarization in late type stars. This certainly anticipated the fluorescence of photoelectric polarimetry. While I never saw Clint operating this instrument, I was impressed that he had recognized the importance of measuring the polarization attribute of light, and that it might be relevant to the stellar objects he studied. Years later in graduate school at the University of Pennsylvania, I had the opportunity to conduct a polarization survey of contact and over-contact eclipsing binary stars. As I did this, I recalled that Clint could have been a pioneer in this field.

#### **4. Clint the mentor**

I can trace the progression of opportunities I have had in astronomy to Clint's mentorship. I would be remiss in not stating this. Because of the background training Clint had given me, and my experience with the AAVSO, I was already at the intermediate astronomy course knowledge level when I went to college. As a freshman at Penn, I was put into an advanced Practical Astronomy class, competing with two junior majors, two senior majors, and two graduate students. Practical Astronomy was an in-depth class aimed at acquiring a working knowledge of Spherical Astronomy, the application of precession and nutation, the precise calculation of time, and the method of least squares for reducing observations. The rigor of this class in turn enabled me to obtain summer work with Peter van de Kamp at Sproul Observatory, Swarthmore College, and then two summers and a semester at MIT's new Haystack Observatory, where I published my first paper, still cited, on the radio star method of correcting the pointing of large altitude-azimuth telescopes, which expanded on the principles of reducing meridian transit observations. In turn this assured that I would pursue graduate studies in astronomy.

While I have chosen mostly the telescope and instrument development side of astronomy, the course of my life would have been very different if it had not been for the mentorship and kindness that Clint Ford showed a neighborhood child. I have had the privilege to build imaging systems used throughout the solar system, to be NASA technologist for the Terrestrial Planet Finder Coronagraph, and Program Manager for the optical manufacture of the James Webb Space Telescope mirror suite, NASA's next flagship mission and sequel to Hubble. There is something about being behind a telescope I still love. I frequently think back to those early days in Suffield with Clint's example. Clint's love of astronomy, and the sense of its importance, has been a central and consistent inspiration for who I have become—and I am just one of the people whom Clint trained and the AAVSO continues to train to aspire to the stars.

*Per Aspera ad Astra.*



Figure 1. Clint and Alice Ford (top row) at the AAVSO spring meeting in 1952, about a year before my family started regular Sunday visits with them.



Figure 2. At the 1957 Annual Meeting. Dorrit Hoffleit is holding a newspaper announcing the USSR Sputnik satellite launching. Clint is at the right in this photo.



Figure 3. 50th Annual Meeting of the AAVSO in 1961 at Harvard College Observatory. This was my first trip away from home alone, and resulted in being kicked off the football team for missing a game, but it was worth it. The left arrow indicates the author; the right arrow points to Clint Ford.



Figure 4. Clint at his 10-inch Newtonian reflector at his home in Suffield, Connecticut, about 1964.