Astronomical Society of the Pacific
San Francisco, California

Leaflet No. 415—January, 1964

THE EARLY LIFE OF E. E. BARNARD
(Part I)

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Few astronomers have earned the recognition that has so justly been accorded to Edward Emerson Barnard, yet none have ever had a more difficult beginning of their careers. Born in Nashville in 1857 after the death of his father, the young boy and his older brother were brought up in poverty and privation so sad and painful that he never could bring himself to speak of this period in his later years. Few details of his early childhood are to be found, but indirect sources suggest that the family had to be content to find sustenance anywhere, including salvaging provisions found floating in the Cumberland River. His earliest memories included the sound of cannon during the savage battles fought nearby in the Civil War and the subsequent havoc of cholera.

More pleasant memories were recorded in an article that he wrote in 1907 for the Christian Advocate: “I can recall when I was a small child lying out in the open air in an old wagon bed, flat upon my back on pleasant summer nights, watching the stars. I soon knew the sky thoroughly as the seasons came and went. When they came around again I would recognize the various groups of the brighter stars, though their names and what they really were did not come to my knowledge until much later in life, for I had never had
anyone to tell me what they were. I soon saw that a few of them changed their places among the others, but I did not know that they were planets.

"Once when I was very small, when as a child I lay out in the night and watched the sky, I saw a comet; and I have a vague remembrance that the neighbors spoke of this comet as having something to do with the terrible war that was then desolating the South.

"I got to know the stars so well that when the seasons advanced and they slowly passed from view in the direction of the sun, I would miss them as I would have missed a friend; and when they again came around, I welcomed them as I would welcome that friend who had been absent for many months. So my interest in the stars as a child, though it was an unintelligent one, was nevertheless a pleasant one to me and helped to soften the sadness of my childhood."

Although he never attended school beyond a brief two-month interval, Barnard learned to read at home. There he also developed his strong, gentle, and kindly character under the care of his mother who, although in poor health and circumstances, was a person of some cultivation. His harsh experiences coupled with her moulding of character developed in him a strong sense of purpose and conscientiousness which became apparent in his first job — in fact, his only job until he took up astronomy seriously. He began it at nine years of age and continued until he was twenty-six.

This work had a number of significant influences on his later career. A portrait studio, operated by a Mr. Van Stavoren, was accustomed to employ a boy for errands and to steer a huge enlarging camera continuously at the sun. This instrument was named "Jupiter" in the then-
Fig. 1 — Edward E. Barnard at about the age of nine when he first went to work in a photographic studio.

common tradition of giving proper names to machines. The task of guiding Jupiter, located on the roof of the portrait studio, was cold work in winter, but in summer, the warm sun would tend to make the boys sleepy so that there was the danger that the wooden components would be set on fire if the tracking was not properly controlled. Mrs. Barnard, learning that Van Stavoren had not found a reliable boy for the task, assured him that if he would give the job to Edward he would carry it out with unfailing diligence. So Edward was hired and started out on a venture
which would make him a master of the art of photography which was then in its infancy. Moreover, he fulfilled his mother’s expectations and in return Van Stavoren was very kind to him.

While working with Jupiter the young boy noted an astronomical phenomenon which is recorded in his own words. “On the platform where this instrument stood I made a mark of a shadow one time at the ringing of the noon bell in the Catholic church nearby. To my surprise this mark served only for a short time to tell when noon came, and I soon found that the coming of the shadow to my mark was a variable quantity; for during the year it was sometimes ahead of the church bell and sometimes behind it. As I could not suspect the church bell of being wrong, I decided there must be something wrong with the sun. Thus, I had at an early age independently discovered the equation of time.”

During the years of his employment he had an insatiable curiosity concerning the heavens but the knowledge he was able to obtain was sparse and not accurate. Finally, a fairly reliable source of astronomical information unexpectedly came to him. He describes the incident: “One night a young man came to my room. He was a born thief and when he was older the law often laid its hands upon him. On several occasions I had helped him out from my meager earnings, for my sympathies were easily worked upon. On this night I was in no mood to be gracious for he had come to borrow money from me, which I knew from experience would never come back. As security for the return of the money he had brought a large book. This I refused to look at; and finally, to get rid of him, I gave him two dollars (which was the amount asked for). I never saw him or
Fig. 2 — The enlarger "Jupiter". At the left is Van Stavoren; standing within the enlarger wearing a top-hat is Braid.

the money again. Shortly after he had gone I noticed that he had left the book lying upon my table. It proved to be a volume of the works of the Rev. Thomas Dick. The greater part of the book was devoted to astronomy; and it was illustrated by, among other things, a number of small charts of the stars, giving their names and how to find them in the sky. These were the first star charts I had ever seen. It was but a few minutes until I was comparing these with the sky from my open window, and in less than an hour I had learned the names of many of my old friends; for there was Vega and the stars...
in the Cross of Cygnus and Altair and others that I had known from childhood. That was my first intelligent glimpse into astronomy. It is to be hoped that my sins may be forgiven me for never having sought out the rightful owner of that book in all these long years.”

When Edward was about 13 years old one of the men with whom he worked, J. W. Braid, made for him a rudimentary telescope, using a spy-glass lens he had found on the road and a pasteboard tube. With this, his first telescope, Barnard amused himself until he and Braid later constructed a new

Fig. 3 — Barnard at about the age of 14 with Poole’s View Wagon.
one from brass tubing of an old spy-glass that had long lost its optics, and a 2 1/4 inch lens purchased from a Philadelphia firm. Fitted on a tripod, this instrument provided excellent views of the moon, Venus, and other planets. It brought Barnard more pleasure than anything else in his young life.

In 1871, Van Stavoren’s photographic gallery failed and the business was bought out by Rodney Poole. The new proprietor did not use Jupiter and after it was dismantled young Barnard made his observations on the roof platform.

Five years later, at the age of nineteen, Barnard purchased a 5-inch telescope complete with eyepieces, tripod, and an equatorial mounting for the sum of $380, about 2/3 of his annual income at the time. Such financial sacrifice is all the more astonishing when it is realized that, from the age of 12, Edward Barnard wholly supported his invalid mother until her death. From his occupation as errand boy and operator of Jupiter he was promoted to the position of printer and subsequently became proficient in all aspects of the studio photographic work, as well as in sign-painting and drawing — a skill later employed most effectively in his visual observations of the planets and the moon.

In 1877 Barnard was introduced to Simon Newcomb by a mutual acquaintance. Newcomb advised the young man rather brusquely that mere observing with his telescope was a waste of time and that he could accomplish nothing without an education, particularly in mathematics. This stern advice left Barnard depressed and discouraged and he confessed to Braid that he afterwards had shed tears. Newcomb later spoke of the occasion: “The incident of my first acquaintance with the discov-
erer of Jupiter’s fifth satellite is not flattering to my pride, but may be worth recalling. In 1877 as President of the American Association for the Advancement of Science at the meeting in Nashville, I was told of a young man a little over twenty years of age, a photographer by profession, who was interested in astronomy and who desired to see me. I found that with his scanty earnings he had managed either to purchase or get together materials for making a small telescope. He was desirous of doing something with it that might be useful in astronomy and wished to know what suggestion I could make in that line. I did not for a moment suppose that there was a reasonable probability of the young man’s doing anything better than amuse himself. At the same time, feeling it a duty to encourage him, I suggested that there was only one thing open to an astronomical observer situated as he was, and that was the discovery of comets.

“I had never even looked for a comet myself and knew little about the methods of exploring the heavens for one, except what had been told me by H. P. Tuttle. But I gave him the best directions I could and we parted. It is now rather humiliating that I did not inquire more thoroughly into the case. It would have been more prescience than I was gifted with to expect that I should live to see the bashful youth awarded the Gold Medal of the Royal Astronomical Society for his work.”

Nevertheless Barnard recognized the wisdom of Newcomb’s advice and immediately found a tutor to teach him mathematics during the evenings when he would have preferred looking at the heavens through his new telescope.

(To be continued.)

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