

WITH BARNARD AT YERKES OBSERVATORY AND AT THE SUMATRA ECLIPSE

(Dr. Mitchell was unable to be present at the meeting but sent this paper afterwards.)

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My first personal contact with Professor Barnard was in the fall of 1898. He had gone to the Yerkes Observatory in 1895 but was forced for two years to remain in comparative inactivity pending the completion of the great observatory with the largest refractor in the world. I spent nearly a year at Yerkes at that time. I had recently acquired the degree of doctor of philosophy from Johns Hopkins University and went to Yerkes as research assistant. Mr. Barnard was the only one of professional rank in residence at Yerkes at the time of my arrival, Professor Hale's father having recently died and Professor Frost was spending half of his time at Dartmouth. I arrived in Williams Bay after dark on a cold, bleak, rainy night late in November. Professor Barnard, out of the kindness of his heart, walked a mile and a half to the station to meet me. His good intentions were in vain for instead of seeing a budding astronomer he "found only a young boy get off the train." I was driven to the Y. M. C. A. camp where I was to find my home for the balance of the year. What a cold reception this was for the "young boy" and what a quiet and lonely time I passed for the first six months of my stay!

On the observatory staff there were then in residence no young people near my own age. I would have been utterly forlorn if it had not been for Mr. and Mrs. Barnard. Those who have had the good fortune to know the Barnards will realize that immediately they took a great interest in me and invited me frequently to their home. In the observatory building he came into my office frequently and I more often went into his, for we soon found that we were fraternity brothers. We have each of us the distinction (?) of having worked for thirteen hours at a stretch on the coldest temperature ever experienced at Yerkes Observatory. He was working with the forty-inch and I with the twelve-inch, and the thermometer where each was working registered twenty-six degrees below zero, Fahrenheit. About 2 A.M. a haze came over the sky and we each left the dome to go down stairs to thaw out. Inwardly, I must confess that I hoped it had clouded for good. If he felt the same he did not say so. The haze was only the last traces of moisture being frozen out of the atmosphere for it cleared off and we both went back to work until seven o'clock. We each survived the bitter cold and were none the worse for our experience—but oh! the torture of working so long at a stretch at such temperature with one's vitality at so low an ebb!

I left the following summer to take up my duties at Columbia University. My year at Yerkes was one of the most profitable in

my whole career. Barnard was then forty-one, in the prime of his life. It was thrilling to the youngster to see the enthusiasm that went into his work, to witness him measuring with the forty-inch or photographing with the Bruce telescope. In some mysterious manner he was able to pass on some of his enthusiasm to me. I was also fortunate to be thrown in contact with Hale and Frost, with Ritchey and with Ellerman.

Before my stay in Yerkes I had been undetermined whether to make mathematics or astronomy my career, but the thrill of practical work at the telescope was too much for the mathematician.

My next contact with Barnard was in 1901 when he and I both went to Sumatra to observe the total eclipse as members of the expedition from the U. S. Naval Observatory. We planned to meet in Chicago and to take a train across the continent together. We traveled across the Pacific in a U. S. army transport, he and I occupying a stateroom together, the trip from San Francisco to Manila taking thirty days. After a wait of eight days we got aboard the U. S. gunboat "General Alava" which was to take us the remaining 2,200 miles of our trip from Manila to the west coast of Sumatra. On crossing the equator we each made the acquaintance of Father Neptune and to each was awarded a diploma stating that proper homage having been paid to the god of the seas, each was no longer a land lubber.

On the trip to Sumatra he was the life of the whole party, always telling jokes, always interested in the landscape and scenery and strange peoples we saw, and always thrilled with the prospect of doing interesting and valuable astronomical work.

At the eclipse of the year before, he had obtained a marvelous photograph of the corona with exquisite detail. But the 1900 eclipse lasted only a little more than one minute, while the 1901 eclipse was the event of a lifetime, lasting for nearly six minutes. To get the faint extensions of the corona, possible with the long exposure, plates 30x30 inches were to be used. If only clear skies and good seeing prevailed at the time of the eclipse!

In addition, Barnard was anxious to extend his photographs of the Milky Way to the southern skies and this was rendered possible by the fact that in Sumatra we were almost on the terrestrial equator. For this purpose a special short focus camera was brought along. Sumatra, therefore, meant a two-fold possibility to the astronomer, photographs of the Milky Way and of the corona.

Arrived at Padang, the capital of Sumatra, he and I occupied a room together in the Oranje Hotel, and slept in the same bed. There was lots of room for both of us for the bed was of huge size, 7x8 feet. And what a marvelous bed with its beautifully embroidered sheets! Together we went to Solok which was to be the main station of the U. S. Naval Observatory party. Here the clouds were harassing. Weather statistics had told us that the usual rainfall was 184 inches, or half an inch per day. In fact, it did cloud up and rain almost every day. These conditions did not promise Milky

Way photographs nor yet pictures of the corona. The conditions continued to be so bad that it was decided best for me to leave the party at Solok and take with me a spectograph and camera and go to the neighboring village of Sawah Loento. It was well for the success of the expedition that this was done, for on the day of the eclipse thick clouds prevailed at Solok and no results of any value were secured, while I, on the other hand, was able to photograph the event through a haze that was very thin.

As I was a newspaper correspondent, I hastened to Solok as soon after the eclipse as possible. Never shall I forget the despair and dejection of an astronomer almost heart broken. There were no photographs of the Milky Way to take home as trophies of the long trip, no coronal pictures to be carefully developed by the expert photographer. The trip back to America was one of deep gloom for Barnard, he was not interested in anybody or anything.

I saw him again after an eclipse in the year 1918. Continued clouds at Green River, Wyoming, during the weeks preceding the eclipse of June 8, had made him despair and had brought him almost to the verge of a break down. Fortunately, for Barnard's health, on eclipse day he had secured exquisite photographs of the corona through thin haze, and best of all, the night following the eclipse he had independently discovered Nova Aquilæ. As a result he took a new interest in life. We, his friends, realize how fortunate it was that the new star blazed forth just when it did.

While I was connected with Columbia University beginning with the year 1907, I got into the habit of going to Yerkes almost every summer to continue research work. In 1912-13, a sabbatical leave from Columbia gave me the opportunity of spending sixteen months consecutively at Lake Geneva. At that time we occupied a house next to his, on the top of the hill overlooking the lake. It was a delightful sojourn filled with happy memories of many kindnesses showered upon the Mitchells by Professor Barnard and his devoted and hospitable wife. Taken altogether, I have spent a total of three years at Yerkes Observatory. On going to the University of Virginia in the fall of 1913, the necessity of going each year to Yerkes in order to do research work no longer existed.

My last contact with him was in the summer of 1922 when Mrs. Mitchell and I spent a month as guests in his home. He was then showing the effects of his hard night work. As I had known him so long and so intimately, I, myself, having grown older and being the director of an observatory, I tried to show to him how foolish was his habit of staying up all night, when he was assigned to the forty-inch telescope, even though it might be pouring rain. I knew that my attempt would be in vain. His reply was characteristic of him. "I have never yet shirked my duty and been found wanting, and I shall not begin now."

I little realized then that in six months he would be carried away a martyr to duty.