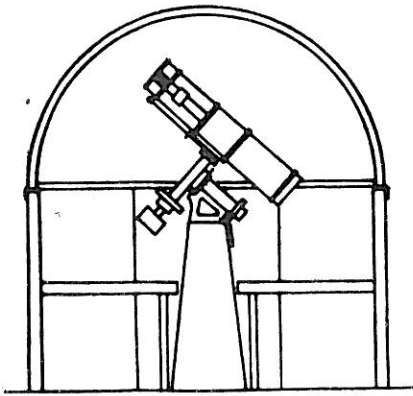


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BUFFALO ASTRONOMICAL ASSOCIATION INC.
BUFFALO MUSEUM OF SCIENCE
HUMBOLDT PARKWAY
BUFFALO NEW YORK 14211



Spectrum

NOVEMBER 1969

NOVEMBER MEETING: Our next meeting (November 14, 8:00 pm EST) will feature an illustrated lecture by Ray Manners, entitled "UFO's - Fact or Fiction: a Scientific Look at the UFO Problem." Ray Manners has studied astronomy and meteorology and he is a member of the Royal Astronomical Society of England, and the British Astronomical Association. Mr. Manners has been interested in UFO's since 1947, and as Product Engineer in Advanced Technology at Bell Aerosystems Corp., he has had to review a considerable volume of technical literature dealing with related fields. Much of his work in astronomy has centered on visual meteor observations. This promises to be an authoritative discussion and we are very happy to welcome back RAY MANNERS!

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* SPY AND TELL * A daughter was born to the Reddings in September - our belated congratulations *** Luane and Marjorie Sundell cruising through New England and Virginia +++ Orrin Christy is teaching astronomy and photography at Niagara College of Applied Arts and Technology at Welland, Ontario *** Darwin Christy is attending Erie Community College, taking an electronics course = Fundamentals of Transistors +++ Ron Clippinger has formed an astronomy club at Gaskill Junior High in Niagara Falls. Reports one enthusiastic youth : "Mr. Clippinger is tremendous and he has a beard *** Rudy Buecking is experimenting with optics, as usual, this time a Schiefspiegler +++ Bill Chambers has been searching out planetary nebulae ("with his shaving mirror" comments Dick Zygmunt) *** Paul Schuart is carrying on a correspondence via tape recorder with a chaplain in Vietnam. Says Paul, "I try to put one record of good music on each tape so the chaplain can hear some of the serious music he loves. In return, he has sent recordings of the choir and a barbershop chorus he has at his chapel" (must be some chapel!) +++ Concerning Camp Sprucelands: Dick Zygmunt, with some enthusiastic assistance from Dale Hankin, constructed a new roll-off roof for the observatory. Dick also finished a 4-inch, f/15 refractor with an equatorial mount *** Dale Hankin is planning to build a telescope to be located at Camp Sprucelands some time in the future +++ John Riggs is absorbed in his research on the Abominable Snowman (?) *** edith geiger ***

OTHER NEWS AND NOTES: This year's membership list is being prepared. Be sure your name will be on the list. PAY YOUR DUES!!! - - - Several months ago, Dick Zygmunt received an information booklet on the coming solar eclipse. He has had copies made of this brochure. Anyone interested in obtaining a copy should contact Dick. - - - We are happy to welcome to Buffalo Dr. Frederick R. West, Assistant Professor,

Geosciences Dept., State University College at Buffalo. Dr. West received his doctorate in astronomy at Indiana University in 1964. Prior to coming here he was associated with the NASA Ames Research Center and the University of Florida. His specialties are galactic star clusters and double stars, and he plans to use the Museum's 8-inch refractor for double star work. * * * Edith Geiger has been very busy recently, appearing on WBEN-TV in September ("Children and Music"); she has also been a speaker at the Western Zone Teacher's Conference ("Musical and Rhythmic Activities"), and at the In-Service Teacher Education for Target Area Schools ("Perceptual Experiences"), both conferences taking place recently. Congratulations, Edith!

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* THE LUNAR CRATER PLATO: MYSTERIES REMAINING * Ernst E. Both

Perhaps no other lunar feature has been studied so assiduously as the crater Plato. And yet - there are a number of features associated with Plato which are either poorly known or poorly documented. Of course today we have excellent close-up photographs from lunar probes, photographs which go a long way in answering many of the remaining puzzles. But we are interested here in what can be observed from Earth, and in the many spurious or contradictory observations which need to be clarified. Many observers have developed the attitude that it is a waste of time to observe the Moon's surface features these days with all the Orbiter and Apollo photographs available. This may be so; on the other hand, lunar observations are an excellent training device aside from the fact that they are a source of endless pleasure and satisfaction. As a general introduction to Plato I recommend Aliko K. Herring's "Observing the Moon - Plato" (Sky and Telescope 27: 250-252, April 1964) which reproduces an excellent series of sunrise views by Philipp Fauth (such a series is extremely rare in lunar literature. Those who like to photograph the Moon should try their hands at this). Joseph Ashbrook's "A Plato Illusion" (Sky and Telescope 19: 92, December 1959) can also be recommended, particularly since it dispels some strongly entrenched, but erroneous views concerning the photometric behavior of the crater floor. Among a number of problems which need solution, the following are, perhaps, the most interesting.

1. Peculiar color phenomenon: Robert Barker, "The Harvests of Plato," Popular Astronomy 48: 19-21, 1940. Barker, a well-known lunar and planetary observer, noticed a peculiar golden-brown color on the west-southwest (in the old selenographical sense, where the Mare Crisium is west of center) wall, about 1-5/8 days after first quarter on December 12, 1937, colong. 27°8 (12.6-inch Calver reflector). He wrote: "I saw a strongly marked streak of orange-brown on the west wall ... which remained constant whatever the eyepiece and power employed. This streak ... consisted of closely interwoven veins, forming a network." About 4 hours later (colong. 29°8) "it had extended irregularly down the wall, westwards" (from the context apparently it should read "eastwards"). "On January 16, 1938" (no time given; the colong. for 0^h UT was 84°7) "the colored area was again easily seen; it had ... extended along the wall beyond A and B" (see map) "and on the next night it had overflowed down ... to the floor, presenting a brownish gold-veined surface of color." This phenomenon was confirmed by Barker's son and observed independently by W. E. Fox (Newark, England) on February 14, 1938 (no time or instrument given; the colong. for 0^h on that date was 77°4). It would be interesting to learn if this coloration occurs regularly, indicating a peculiar surface tint, or if it is ephemeral and anomalous, indicating some form of activity or the like.

2. Large, low dome on the eastern floor: Aliko K. Herring, "An Unusual Observation

of Plato," Sky and Telescope 30: 184, September 1965. Using a 12.5-inch reflector at 419 X, Herring observed a large (ca. 1/3 of the floor diameter), low, dome-like structure on June 8, 1965, at colong. 14.93; this was photographed by Steve Larson with a 5.5-inch refractor. Apparently this object had not been observed before, although it coincides approximately with a well-known "bright sector." What are the precise conditions under which it is observable? What is its duration of visibility during one lunation? Photographs would be welcome, particularly with larger instruments.

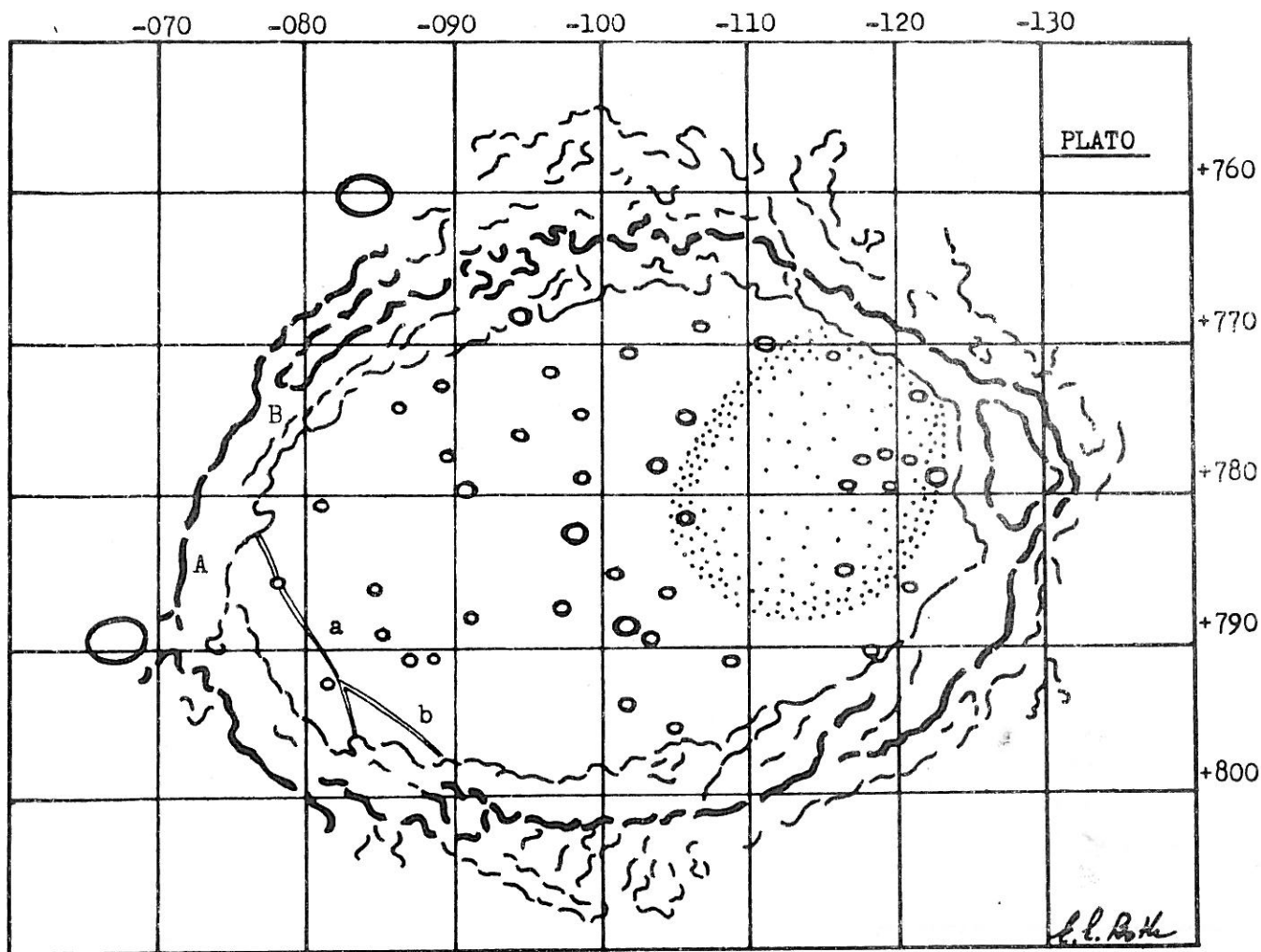
3. Rilles on the floor: The history of suspected rilles on the floor is somewhat peculiar, but hardly surprising when one considers the fact (which I have reiterated time and again) that one can pick any lunar feature at random and find more questions than answers associated with it. No recent observation exists of which I am aware, and Fauth's map (1) is by far the most detailed. Apparently the first rille-like object was recorded independently by L. Brenner (2) and the Rev. W. R. Waugh (3) in 1895. Brenner used a 7-inch refractor under excellent atmospheric conditions, while Waugh used a 12 $\frac{1}{4}$ -inch refractor.

This rille (delineated somewhat differently by the two observers, as might be expected) is nearly the same as that shown by Fauth ("a" on our map), except that Brenner placed it closer to the wall. It was also observed by P. B. Molesworth in 1897 with a 9 $\frac{1}{4}$ -inch Calver reflector, but this observation was not published until 1916 (4). Like Brenner, Molesworth placed it close to the wall, almost at the base of it. Rille "b" is shown only by Fauth, although it may vaguely correspond to a "cleft-like" white marking noted in 1896 by the Rev. T. H. Foulkes (3) with a 10.5-inch Calver reflector. Fauth used a 6.5 and a 7-inch refractor. It is interesting to note that of recent observers only Herring shows anything of a rille, namely the short segment of "a" running from the west wall to the craterlet. He called it "extremely delicate," using his 12.5-inch reflector at 325 X (5). Most of "a" was apparently also observed by A. Stanley Williams with a 6 $\frac{1}{2}$ -inch Calver reflector as early as 1892 (6). Williams called it "an extremely fine and delicate black line" which he considered to be "either a delicate rille or else a fault" (7).

The puzzling thing about the Plato rilles is that Herring, observing under good conditions at Haleakala, Hawaii, with a good-sized instrument had difficulty seeing what Brenner, Molesworth, and Fauth observed more completely with smaller instruments and in generally poorer climate. These three observers were in the habit of observing the waning Moon and perhaps this is a clue to the puzzle: perhaps these rilles (if that is what they are) are more readily visible under evening illumination (unless one postulates that the rilles were more easily visible around the turn of the century, which seems to be quite unlikely).

The outline map of Plato published here is based on the Orthographic Atlas of the Moon and is on a scale of about 1:843,000, so that one inch equals about 13.29 miles. The problem of craterlets and spots on the floor is an extremely vexing one, and one on which an enormous amount of energy has been uselessly expended. The craterlets shown on this map have been collated from the most reliable representations. I personally am not convinced that they all are indeed craterlets - undoubtedly some may simply be spots.

References: (1) The Moon in Modern Astronomy, N.Y.: 1909, p. 115; (2) "Lunar Observations at the Manora Observatory: II," English Mechanic 61: 12, 1895; (3) Foulkes, Rev. T. H., "The floor of Plato," Journal B.A.A. 6: 210-211, 1896; (4) Memoirs B.A.A. 20: plate IV, 1916; (5) Sky and Telescope 27: 251, April 1964; (6) Observatory No. 191: 319-320, 1892; (7) ibid. p. 320.



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