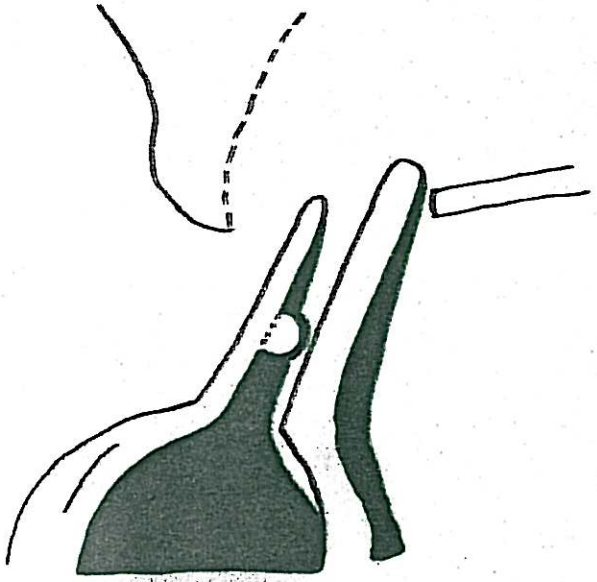
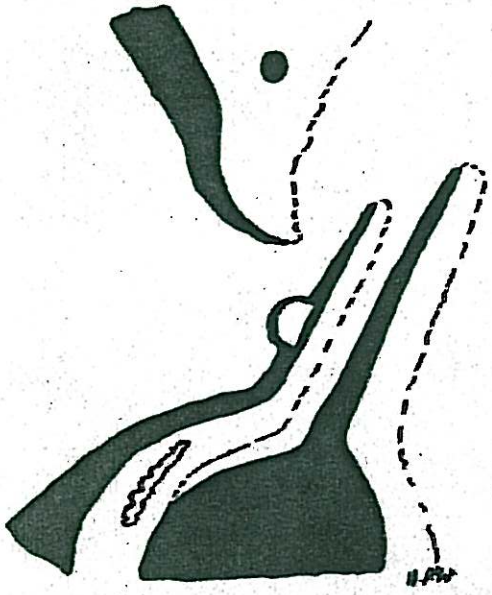
From THE MOON (Bulletin of the BAA Lunar Section)
Vol. 3 No. 1 Editor: F. H. Thornton Director: H. P. Wilkins.
1954 ~~June~~ Sept.





COPY OF ROUGH SKETCH FROM
A LETTER TO THE EDITOR
DATED 14. MAY 1954.

JUNE 17th. 1954
Mr. WILSON.
60in. x 500.

30 mins. later.

from THE MOON Bulletin of the BAA Lunar Section
V.3 ~~No.4~~ N. 1 Editor: F. H. Thornton Director: H. P. Wilkins
1954 ~~June~~ Sept

Editorial Comments, continued.

My remarks in the last issue about the Ariadaeus Cleft have brought a reply from Barker, whose interesting article will be found on page 11. A careful search of this area may result in some worth-while discoveries.

Another reply came from Whitaker, who confirmed the break in continuity which I mentioned, and pointed out that it is plainly visible in even the poorest of photographs. But he has gone much further, and, as will be seen from the drawings reproduced in this issue, has drawn attention to four more breaks in the cleft.

Again, at least one of them can be traced in photographs, and it becomes more of a mystery why these are ignored on the maps, for the eye can pick out such things much better than the photographic plate. Whitaker does not believe that the Ariadaeus cleft is a true cleft at all, but a wide, shallow valley having, in cross section the same conformation as that of an ordinary crater.

In his opinion the vast majority of the lunar clefts can be so described, very few, if any, having even approximately vertical sides. No major cleft presents the appearance portrayed on page 129 of the Director's book "Our Moon", or as shown in the illustration in Moore's book, "Guide to the Moon", opposite page 80.

In all these matters I am strongly inclined to agree with him, and invite anybody who thinks the illustrations mentioned are a true interpretation to write and state his grounds for the belief.

Whitaker has also confirmed the break in the Hyginus cleft to which I called attention. He tells me that he does not see the sides of the cleft quite as "regular" as I drew them, but it is not to be understood from that that he thinks the crater-chain version is correct - for if he does, I believe he would have said so. Cross drew the cleft at my request on a night of well-nigh perfect seeing in the Spring, not knowing why I wanted it, and his drawing was in almost perfect agreement with my own.

- - - - - - - - - - - - - - - - - - - - - - - - - - - -

If you will refer to the third paragraph of the note by the Director on page 60 of the last issue, you will see that he says a deep notch in the eastern wall of the combined crater C and "venturi" valley would be as remarkable as the arch, that is, if such a notch exists. There has not been any question about the reality of the band of light across the ring plain P at sunrise, and it seemed to me that there must be a notch in the wall to explain it, though I had not seen such a notch. I am pleased to announce that I have now seen it, on 1954 August 17 at 0030 hours in rather poor seeing, with a power of 350. It lies on the south eastern quadrant of the small crater C, and appears to extend to some little distance along the east wall of the valley.

To be as definite as I can be in the circumstances, it seemed to equal in width rather more than half the diameter of the crater and to commence slightly south of the centre thereof.

Editorial Comments, continued.

The Director goes on to say that there should be a similar beam cast at sunset from this most remarkable notch. Bur he forgets that the east wall of that valley and the crater is higher than the west. The notch does not extend to the bottom of the wall, in fact it appears to go down only about half way. I certainly saw no beam of light extending westwards, and I naturally agree with him that one would be expected. But the sun was very low, and on the Mare surface little was visible other than the fan-shaped remnants of the light through the gap mountains.

There were, it is true, some indeterminate pieces of light on the upper heights of the west wall of the valley, but I saw none which could be interpreted as the beam through the notch. As I have said, the seeing was poor, and I think I was lucky to see the notch at all. It is, of course, possible that I was too late, and the beam was lost in space. At any rate, I am sure there is a notch, and it does not follow as the night the day that the appearance at sunset must be similar to that at sunrise.

An interesting suggestion has been received from Burrell, which could be followed up with advantage. He says, "I think the appearance shown in Wilkins' drawing of 1953 August 27 (current vol. J.B.A.A.) and perhaps also O'Neill's original observation are due to the existence at this point of a shallow flat ring, about as large as Goodacre's craterlet E, with a narrow and low, but quite well defined wall. The east wall of this forms one side of your "venturi valley, causing the narrowing thereof, and completely bridges the gap between Olivium and Lavinium. The west wall will evidently appear, under setting sun, as the shadow of the arch. At this time the east wall will be lost in the shadow of the east side of the "venturi"."

If you study my diagram on page 54 of the last issue, Burrell's suggestion seems feasible, and the hillock opposite the gap could be the central mountain. I have not noticed any indications of the missing parts of the wall of the ring, but I have put out a tentative suggestion that O'Neill mistook the shadow to which Burrell refers for that of an arch.

But time marches on, and opinions change. O'Neill's bridge is as dead as the dodo. It has been superseded by a new bridge, a much more delicate affair optically, which spans a hole in the middle of the western venturi wall, and I shall henceforward call this new bridge "Wilkins' Bridge".

- - - - - - - - - - - - - - - - - - - - - - - -

On page 4 there is a drawing by Wilkins made with the 60-inch Mount Wilson reflector, and alongside, on the same scale, I have placed a copy of a sketch which he sent to me on May 14th., before he went to America. Incidentally, I think he is very fortunate in having had such a wonderful opportunity, and, as the saying goes,

I am "green with envy". These two drawings show Wilkins' bridge at sunrise and at sunset respectively. Here, he says, is clear evidence of an arch over a gap in the west wall of the valley.

About what the 60-inch revealed, there can, of course, be no doubt, nor do I question the other sketch, for which the instrumental aid is not mentioned. It may be his own 15¼, or the Newall refractor, or Dr. Steavenson's 30-inch reflector. I accept both drawings without comment, but, as the lawyers say, without prejudice.

The date of the sunrise drawing is not stated, but at the date of the Mount Wilson drawing there was a fairly strong east libration, the maximum being on June 20th.

Now all the drawings of bridges up to date have represented it as though the observer was directly, that is, vertically overhead, looking straight down on to the top of the arch. But if we look into the effect of perspective on an arch situated where this one is, it becomes evident that we shall see the arch itself, especially at all eastern librations. We shall see the east face of the arch, but never the west face. Furthermore, at sunrise, when the light is coming through the arch towards us, we should see the unlit face as a black curve, separated from the shadow curve at all points except where the two meet at the foot of the arch.

Next, let us examine the shadows drawn by Wilkins. We see the long level shadow of the western wall suddenly interrupted by the curved "shadow of an arch". Unless I am very gravely mistaken, this indicates that the arch itself stands up above the top of the wall. It shows the whole of the arch "standing proud" of the wall, and the mental picture which it produces is one of those rose arches beloved of scenic gardeners, spanning the gap in a hedge where one passes from one enclosure into another.

Both drawings show almost the same thing, but the implication is so utterly fantastic that I cannot believe it to be true.

The enormously greater aperture of the 60-inch reveals a sort of "step", up which, presumably, one would have to climb on entering the opening. The only other bit of description which we can glean from the drawings and the notes which Wilkins has sent me, is that the width of the opening is estimated to be only 1½ miles, and as the valley is said to be 3 miles wide, the height under the arch would appear to be at least 2 miles.

This is, indeed, a mystery, and will probably continue to puzzle us for a long time. I will leave the subject now with a hint, that readers should think out what would be the next appearance when the sun has risen a little more - and still a little more.

- - - - - - - - - - - - - - - - - - - - - - - -

Dr. Steavenson reported a very delicate ravine running along the top of the western wall, and this is confirmed by the Mount Wilson drawing, but I see that Wilkins gives it the aspect of a crater-chain. One might be prompted to enquire whether all cracks take on this appearance when examined with really big apertures.