

Walter W. Leight Jr.  
4518 Packard Bldg.  
Philadelphia, Pa.

Dear Mr. Leight:

I am wondering how you are getting along with your 9 $\frac{1}{2}$ " mirror and the mounting.

I am enclosing some drawings of Jupiter I made with my 8 $\frac{1}{2}$ " reflector in 1908 to 1913. The mirror had a focus of 96" so it gave splendid definition.

You will notice the shadows, and some other little cloud spots that look a good deal like shadow, but not so well defined.

There are queer little bright marks or breaks in the dark belts and on one date I saw the outline of the great red spot very decidedly.

I have been so busy I could not find my plate of photographs of my drawings of Mars in 1915-16 but have six of them and am enclosing them, they were made with the 12" refractor of 20 feet focus at Yerkes Observatory, the one on Jan 7th. was made with the 40" refractor and the 12" and the straight markings are too straight but I could not draw them as I saw them the detail was too great and too fine to get, even in two hours.

You will notice the planet on Nov. 29th. at 8.a.m. and the great white cloud or snow storm extending in several hundred miles from the snow cap the very next morning, that must have been a great storm, I never saw anything like it before or after.

Some day soon I will send you a print of the 15 drawings. There is something wonderful about Mars, it is not flat but has many craters and cracks. I saw a lot of the craters and mountains one morning with the 40" and could hardly believe my eyes and that was after sun rise and Mars was high in a splendid sky and I used a power of 750 and after seeing all the wonders I went to Barnard and showed him my drawings and told him what I had seen and I had never heard of any such thing having been seen, and he laughed and told me he would show me his drawings made at Lick in 1892-93 and he showed me the most wonderful drawings that were ever made of Mars, the mountain ranges and peaks and craters and other things both dark and light that no one knows what they were, I was thunder struck and asked him why he had never published these and he said no one would believe him and would only make fun of it. Lowell's oases are crater pits with water in them, and there are hundreds of brilliant mountains shining in the sun light. Barnard took whole nights to draw Mars and would study an interesting section from early in the evening when it was just coming on the disk until morning when it was leaving and he made the drawings four or five inches diameter and it is a shame that those were not published.

I do not know as any one would be allowed to even look at them now, they are at Yerkes and will stay buried (*sic*) I suppose.

The canals are not as straight as I drew them but the best I could do because the fine detail was just at the limit of vision and waves wash across (*sic*) and destroy detail and then it comes at instants. I have done a lot of work making mirrors and lenses for Lowell Obs. but when it comes to Mars they do not see anything in my drawings that they ever saw on any map, at least that showing a wonderful lot of detail. Well to say the best for it I could hardly make out anything. So that is the way it goes.

For planetary detail one must have a very long focus mirror or objective, a short focus will not give the needed contrast.

Very truly yours.

*John E. Mellish*