

ELECTRONOTES

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HOW THE FARMER CORRECTLY SAW THE RINGS OF SATURN

In the fall of 1970, probably late November (corn-picking time on the farm in New York for sure) I was “between jobs” and was residing on my family farm. I had just been discharged from one “job” (The US Army!) and was awaiting a return to Cornell. Like many GIs I had succumbed to the temptation to buy a lot of goodies from the PX overseas at fantastic discounts (tape recorders and the like, as well as cameras, optics, etc.), many of which were shipped directly home to the states. So I had a number of packages waiting on the farm when I got there. One was a telescope of about 2.75 inches lens diameter. I had that set up and was soon looking at whatever I could – not as great as I had supposed it might be.

Now I may speak of the farm as though I was primarily a farm kid and in many respects I was. The farm was about 330 acres, beef cattle, and we did the work mainly ourselves. My father had a day job as a chemist at Kodak, so we often needed to hire local farmers to help with specific jobs. They were always hard-working and of high personal character and ability. Not untypically, they were very intelligent, and you could learn a lot from them, about farming of course, but also about life in general.

I remember well John R. Actually, John had a pre-law degree from Miami of Ohio, but economic conditions had prevented his leaving the family farm. I can think of no finer people (he and his wife Gertrude) or people I liked and respected as much. If one had an important question, one asked John. He was a philosopher. Moreover, once the question was asked, he could think for as much as a full minute before he answered. Imagine – thinking before you start talking. Three stories about John.

When we drove by his home, and saw him about, we gave him a wave. On many occasions, he did not wave back. I asked him one time why he had not waved back the evening before. "You knew I saw you," was his very logical reply.

A second story relate to his work ethic and character. He was a close acquaintance in the sense of being both a friend and neighbor, and it was an enviable position to be in his company both physically and figuratively. I saw my father put others in terrible bind by saying "You and John R. are the only two men in the county who if they tell you they will do something, it's as good as done." What could they do but try to earn the position in which they had been inserted.

The third story is the "three boy" story. John used to say that a "good boy could do a man's work, two boys working together would get half a man's job done, and three boys working together weren't worth a damn." I always remembered this story, and told it many times, particularly as I would have three students wanting to collaborate on a project.

John baled our hay. We cut it and raked it, but he came with his equipment and baled it up. Sadly the bales just fell to the ground, and we had to come along with the truck and hand loaded them and took them to the barn. Try as we might, we never persuaded them to take themselves in on their own get-go. That was a physical fact.

All this is to make the point that when you hired a man to help, you were also hiring his equipment. He got paid for the result. So when you needed corn picked, you hired a farmer with a corn-picker. This of course helped them to afford their equipment in the first place.

So I also remember Charlie S. who was one of the first we hired to pick corn. My father took a few days of vacation to haul and unload the wagons of corn as Charlie picked them. At noon, my father took the pickup to collect up Charlie for lunch. Charlie allowed that he had brought his own lunch. My father protested that it was his understanding that when someone worked for you, they took their meals with you. Charlie said that that was true, but he didn't know for sure if we knew that (we were new). But he did eat with us thereafter. But apparently, farmers don't over-assume.

This brings us back to the telescope, the rings of Saturn, and yet another farmer – Bob H. Bob was another corn picking man, and he was good at the dinner table. He had to be because he was a very big guy. He could put an entire hay bale over the side of a truck using a pitch fork. When he encountered some hunters from the city drawing a bead on a crow, instead of expressing his gratitude to them for proposing to get rid of one rural crow, Bob asked them if they had any idea where the bullet was going to end up after it went through the crow. When they expressed a lack of concern (this was farm country after all) he simply told them where the gun was going to end up if they pulled the trigger. (Suffice it to say it would have made for an

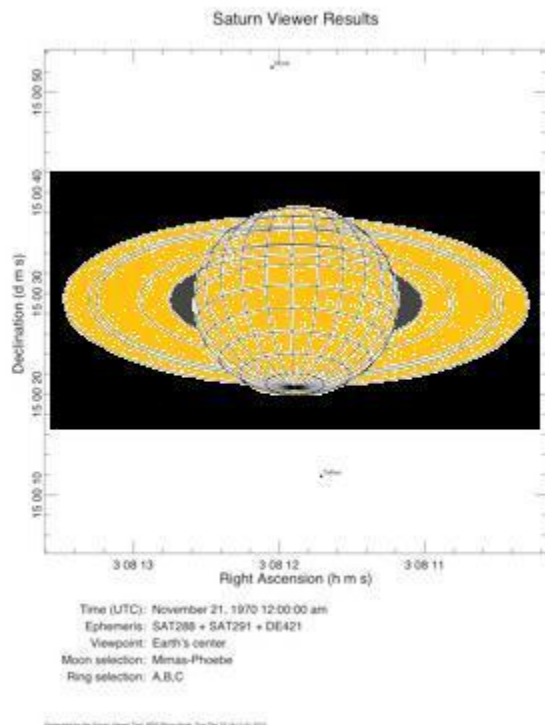
uncomfortable ride back to the city.) They didn't need to consider too long to realize that he was big and strong enough to do it.

Okay – so finally back to the telescope and the rings of Saturn. It had to be late November, and Bob had picked corn and we had finished supper. I was outside with the telescope. We had been looking at Saturn for several evenings. We saw the planet and saw its rings, both my father and myself saw them. So my father said “Hey Bob, come on out and see the rings of Saturn.” When Bob looked he said “Well I'm not sure if I am seeing the right thing. I see an orange egg-shaped thing with two dots on it. Both my father and I were taken aback. Only Bob had seen the right thing. He was the scientist – reporting what he actually observed – not what he assumed he was supposed to see.

Here is the situation. When you look at Saturn (especially with a small scope) what you see is not at all like the beautiful pictures in the books, let along the stunning images from the deep space probes we have today. In a small pathetic scope, it is still small in the first place. And the rings may be tilted or more or less side-on depending on where Saturn is in its orbit. It's orbit is about 30 earth years so every 15 years the rings are seen (not seen!) on edge, and 7 years later you see them face on but tilted. Further, the rings reflect light as intensely as the planet body, as far as one can see in the small scope. Where was Saturn in Nov. of 1970? Today we click a mouse to find out:

http://pds-rings.seti.org/tools/viewer2_sat.html

From the rendering at the website, we can see that in the fall of 1970 (and for several years about then) there was a nearly fully tilted view rather than an edge-on view. I have blackened the areas that are not rings or the planet body, and added orange. So the view was of an elliptic object with the two dark spots



Fans of Robert Heinlein will likely recognize an instance of the “Fair Witness” in what Bob reported. Heinlein’s witness when asked the color of a house up on the hill only said that the side she saw was white. Inference, speculation, even imagination, is admirable as long as one does not embrace an unwarranted reality that extends beyond observation.