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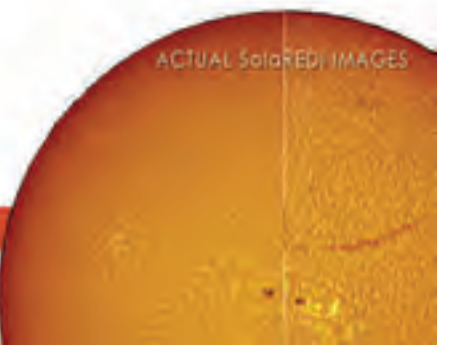

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Confessions of a Christmas Trash Scope

The bane of amateur astronomers world-wide!

By Richard S. Wright, Jr.

Christmas comes and goes and in its wake lay thousands of Christmas telescopes, adorning closets and garages all across America. Telescopes are popular gifts and children of all ages dream of the sights each will bring of the cosmos. For every such child there is a corresponding adult fretting over which telescope to buy, and afterwards how to use it! Astronomy magazines publish annual telescope buyer's guides and articles warning gift givers about cheap telescopes and misleading advertising…

I remember well my first telescope. I was only in the second grade, but having marveled at the Apollo missions and being spellbound by a school trip to the planetarium the year before, I knew somehow space was my destiny. I recall begging my parents for it and being told that I was too little for such a big toy. Constant nagging, always an effective childhood technique, finally won out and my parents surprised me Christmas morning with my first "real" telescope. I was disappointed to see that it was so small and had no stand like the bigger models I had seen in the store. But the numbers on it read "7x35." Wow! That must mean 35 power times 7! Surely I could see the flag left on the moon by the astronauts with such a powerful instrument.

I quickly discovered that the telescope excelled at looking at my friend's house down the street, but not at looking at the stars. The sky was a total wash - occasionally I would see a star or two briefly zip through my field of view, but the wonders of the night sky eluded me. I tried looking at the moon - when it was full, naturally - and found that it looked a little bigger, but, alas, no flag or footprints of astronauts. Just keeping the moon in view was too much of a challenge for a seven-year-old's patience.

I don't know how long it was before I finally turned my small scope towards the moon again, but this time while it was only half full. I recall steadying it on a low hanging branch of the tree in our front yard. I don't know the date, or even the year, but it was a moment that changed my life forever. Suddenly, I saw craters on the moon. Real craters, in glorious, astounding 3D relief! Why, oh why didn't someone tell me that the best time to look at the moon was NOT when it was full? For the first time ever I really saw the moon – with my own eyes. No, this was not a picture, this really was the moon, and closer than I had ever seen it. From that moment forward, the sole purpose of my life would be to acquire one of those bigger telescopes, with a stand to hold it steady, and with eyepieces that let you zoom in real close. I imagined myself as an adult with a small dome in my back yard, my glorious telescope tucked away inside – the mysteries of the universe awaited!

Always, I have loved the sky. I'd lie in my yard staring up at twilight, watching the stars come out one by one. I'd lie on my back and watch the moon in the daytime, dreaming of the moon bases that would be there by 1999. I'd be in my 30's by then - probably too old to survive a ride on a rocket.

As so often happens, life has its own priorities and my dreams of a mighty telescope remained only that for many years. Middle school, high school, the death of my father, my first "job," and working my way through college left little time or money for an expensive telescope. Soon

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marriage and a career lay close on the horizon and I dared finally dream of splurging to acquire my lifetime dream. After all, what good is it to be an adult if you can't buy the bigger toys! My fiancé at the time took note of my unhealthy obsession with space (thankfully, she married me anyway) and would patiently allow me to drool over the telescopes at the department stores we'd visit. These were usually in the camera department and she had a camera after all.

It was Christmas 1985, when my soon-to-be wife presented me with a gift box that was heavy, long and slender. Tearing away the paper revealed the dream of my dreams. It was red and shiny! It had its own stand with precision slow motion controls! It had its own little "finder scope" attached and, best of all, it was marked "450X"! I knew by this time that no telescope would show me the flag on the moon or the footprints of the astronauts, but 450 power was definitely going to bring me the universe! It even had a special filter for the eyepiece that would allow me to look at the sun!

Yes friends, what I have just described is the dreaded "Christmas Trash Scope," the bane of amateur astronomers worldwide each and every Christmas. Astronomy magazines and books are full of articles warning you about this dreaded monstrosity. The mounts are wobbly and useless. The optics are cheap and produce "rainbow" star images. The solar filters are DANGEROUS (lucky I'm not blind!) and the maximum useful magnification is actually more like 40 power, not 450. "Do not purchase such a scope," the commentators lament. "They will lose interest in astronomy and get frustrated," they say. "The filters can crack and blind them!" they warn. "Buy them binoculars instead," they recommend. Binoculars?

It is my most unqualified opinion that most of the people who offer such advice have 20-inch reflectors and the roofs of their garage slide off at night. Sure, to them such an instrument is unworthy of anyone's closet and is incapable of fostering any real interest in astronomy or of being any use at all.

A piece of advice here: any child (regardless of age) who asks for a telescope and receives binoculars instead is going to be sorely disappointed (you might as well have bought them a sweater). No amount of coaxing will get them to appreciate the practical utility of a pair of binoculars. Every child knows that you need a telescope to look at the stars, not binoculars! It doesn't matter how many books or magazine articles you show them, nor that it is actually possible to hold binoculars somewhat steady. We - um, they - want to see the moon and planets, through a real telescope! Don't try to pawn off a pair of binoculars on me mister - I want the real thing!

There is something magical about actually having a telescope that suddenly elevates astronomy from an academic interest into a bona-fide obsession – which means that now I would start reading about telescopes and how to use them. For some strange reason, very few of us do that first. It took me less than a week to discover that my bride-to-be had just "thrown her money away" on a useless instrument that would bring me frustration and inadequate views of anything I aimed it at. Images would be color distorted, stars would glare, high-power views would be impossible, and I would never be able to hold the scope on any target with the poorly constructed stand supplied.

In the interest of her remaining my bride-to-be, I decided against the "Thanks honey for the effort, but you really should have gotten me binoculars!" approach and decided to make the best of it. No choice really. Even the price of a Christmas trash scope was a lot of money to us back then and hopes of a better scope would be years away.

My first night out, I was determined to get a look at Jupiter's Great Red Spot. Jupiter was high in the sky at sunset and

very bright. It was much later that night and January-in-Kentucky cold before I finally took my new scope outside. At midnight I looked to where Jupiter had been before and I saw a bright "star" in roughly the same place (so I thought). I'm embarrassed to admit this now, but I was a semi-college educated young man on his way to being an engineer, who knew the earth rotated, but didn't have enough of a grasp on the scale of things to realize that Jupiter had long set by the time I tried to aim my new scope at it. Instead, I was actually looking at the star Sirius.

It was 5 degrees Fahrenheit and I'd found a dark place behind my mom's garage to set up. I had big thick gloves on, which made it difficult to work the "slow motion controls," but I persevered. I immediately selected the highest-power eyepiece and paired it with the included 2X Barlow lens. Then I began trying to center the scope on what I thought was Jupiter. I finally figured out that I should start with the lower-power eyepiece and then, once centered, switch to the higher-powered eyepieces. The problem was that, even with the lower-powered eyepiece, I could not get Jupiter (Sirius) in my field of view. Occasionally, I'd get some faint smudge of brightness, but it was out of focus. I wheeled the focus knob all the way out and back in, but never saw anything. I finally decided to focus on a neighbor's porch light and discovered that even that could not be found - only darkness greeted my gaze.

I removed the eyepiece and was going to quit in despair when I noticed that screwed into the eyepiece was the dark-green solar filter I had been playing with earlier when I unboxed the scope. Revitalized, I again attempted what I thought was Jupiter. I did in fact manage to get Sirius centered in the low power view, but it looked more like an airplane from a distance, with multi-colored lights on it, than a single star. The view never really appeared in focus, or so I thought. I looked at the objective and discovered that my misadventures thus far had taken so long that the front lens had frost on it and was mostly blocked by it. Perhaps my breath, which I could see colliding with the lens in the cold air, wasn't helping.

Over the years that followed, I learned how to get the most from my trash scope. I never did see the Great Red Spot on Jupiter with it and I learned that stars, by themselves, were on the whole fairly uninteresting, and that the brighter they were the worse they looked. But, I also found that some of the dimmer stars were actually double stars and that my lowly trash scope could actually split many doubles very well. I found that some star charts had double stars marked, and that finding them and seeing the two components was actually quite challenging and fun in itself. With the aide of my poor scope, I was learning to use a star chart and learning my way around the night sky like I never had before (recall, I didn't recognize Sirius when I saw it!).

I still remember the first time I found the Great Orion Nebula (exploded star guts as I described them to my cousins). I couldn't believe my eyes! It was like finding a microscopic universe in the middle of the sky. It had been hanging over my head all my life and I had never known it was there. I marveled at Saturn's rings. Jupiter showed me two brown bands and orbiting moons that changed nightly. I began to keep a journal and sketch in the positions of the Galilean moons and any background stars I thought I detected near Jupiter. Once, under ideal conditions during the apparition of 1988, I even saw a polar cap on Mars' otherwise featureless disk. M13 in Hercules took repeated tries from a lighted apartment complex parking lot, but, once I found it, I felt like a "deep sky pro."

But the moon remained my favorite quarry. It is different each and every night and you can wander its surface endlessly. I found that my "flawed" optics actually did a fair job on the lunar surface, as long as I didn't push the magnification too much,

and even then, I could still see enough detail to identify features in a lunar atlas. I discovered by accident that you could project the moon's image on a white T-shirt through the back of the telescope with no eyepiece in place. Soon I was using an index card behind the telescope to trace the lunar disk. I even used this projection technique during a couple of partial solar eclipses to show friends the "dragon biting into the sun."

Finding and tracking an object was quite a challenge. To keep the scope steady, I occasionally tied an old tennis shoe to the tube to weigh it down to reduce vibration. I became keenly aware of light pollution and found that neighbors' porch lights were often the worse culprits. I would often sit in an outside closet to keep stray light from interfering and would put a jacket over my head and the scope.

Even with such a poor, trashy instrument, I discovered the tricks of averted vision, that dark adaptation was important, and that the longer you looked at something, the more detail would appear over time. I took my small telescope everywhere: to darker skies near Fort Knox, Kentucky, and to my wife's aunt's house in Tennessee when we were on vacation, where she thoughtfully "surprised" me by turning on the outside flood lights, because she felt sorry for me "out there in the dark."

I don't see as many trash scopes at the department stores anymore. Now when I visit the department stores, I see brand names that grace my shed and back room today. I see reasonably advertised powers of 40x and 50x, with pictures on the box in black and white, not from the Hubble spacecraft, but more representative of what might actually be seen. This is a good thing I think. Still, I occasionally come across the 700X telescope that can see for a hundred thousand trillion miles. I wonder how many other budding science enthusiasts they have ruined?

I did eventually move on from my poor trash scope. Some years later, my family was growing, my career taking off, and we moved from Kentucky to Florida. A trip to the beach ruined a camera and a trip to a camera repair shop introduced me to my third telescope. There in a corner with "used" equipment stood a white 4.5-inch Edmund Scientific reflector. It was on consignment, with no eyepieces and a primary mirror that looked like somebody had to scrape the leaves off it before bringing it in out of the rain. A burned out clock drive completed the ensemble. For $50 I took it home. I found that if I wrapped enough electrical tape around the eyepieces from my old red trash scope, I could make them fit in the 1.25-inch focusing tube of my new reflector. Oh what joy and further discovery lay ahead…ATT