

Summary: I find the Tasco 301051F unsatisfactory for astronomical use.

I went to Fremont Peak (California) on the night of 10 February, taking advantage of sudden good weather to get in a little observing. Recent rain and cloud had evidently chased most people away, though, for less than ten observers were present.

I had a particular motive for the night's session. Just after Christmas, I bought myself a new telescope, and wanted to try it out. I decided to see just how bad things were for innocent newcomers who didn't know much about telescopes, so I went slumming. Macy's was too far for a shopping expedition, so I bought a Tasco 50 mm f/12 refractor -- model 301051F -- at a local drug store, for the princely sum of \$49.95. It comes with a 12mm Huygenian eyepiece, a 2x Barlow lens, and a 17mm erecting eyepiece. The store had a whole pile of Tascos, well advertised, and this was the cheapest unit that did not require a tabletop to stand on, so I expect lots of other people had bought one, too. I figured that even if it didn't give me my money's worth as a telescope, I would be able to obtain fifty dollars worth of satisfaction complaining about it on the internet.

I am not disappointed...

The Tasco 301051F isn't good enough to burn ants.

Its major flaw is lack of an achromatic objective. (I took it apart this morning just to double-check, and sure enough, all there is, is a thin plano-convex that might well be made of window glass.) Oddly, that is not as big a deal as you might suppose, for when looking at objects as faint as most stars and deep-sky objects, the lack of color correction is not noticeable; however, the kind of bright stuff that a beginner or a child will turn to first will be rainbow-hued and blurry -- Venus and Sirius were delightful bulls-eye patterns of dazzling red and blue concentric rings -- and most newcomers won't have the faintest idea what's wrong. Daytime views are similarly, unnaturally, colorful. The Moon was not up when I was observing, but I expect it would look as if the American flags left by the astronauts had been made with rather runny dye.

I got a Tasco catalog and looked through it a bit; Tasco has a line of telescopes closely similar to the 301051F, and I will bet that none of them have achromatic objectives. My advice would be to be very wary of any Tasco refractor with a red tube; that seems to characterize the line.

Not all Tasco instruments are this bad. I have two Tasco

binoculars with which I am well pleased, and I suspect that more expensive refractors do have achromats. I have observed with a 1960s-vintage 60mm refractor bearing the Tasco label, and it had excellent optics.

The box the Tasco came in bears the words, "Certified to meet ASTM and European National Standard". I don't know whether either of those are intended to encompass recognized standards for telescopes, and I don't much care -- the Tasco 301051F either does or does not meet a recognized standard, and it's terrifying no matter which. Thus one might also be wary of other telescopes certified to meet ASTM or European National Standard. I encourage telescope manufacturers not to tell anybody if their instruments meet standards which this 50 mm Tasco is able to pass.

Oddly, Tasco has actually done what is in some respects a good job. With an achromat, this unit might be a satisfactory beginner's instrument. The mounting is notably improved over low-end telescopes in years past. It is still a little spindly, but the pan-style altazimuth head uses plastic-on-plastic sliding surfaces which help to damp vibration and which have none of the mechanical slop of some of the older altazimuth yokes, that had metal shafts set into die-cast bearing surfaces, and used loose-fitting screw adjustments for altitude.

Tasco's 16-page booklet "Reach to Worlds Beyond", which came with the 301051F, is an *excellent* short beginner's introduction to telescopes and astronomical observation. It's the kind of thing that clubs should buy in bulk to give away at public events. A Moon map and solar-system poster round out documentation that any beginner will find useful and interesting.

I just wish a telescope came with it.