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Nexstar 11 vs. Meade 7" LX200

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Daniel Mounsey (right) and John Risti with 6" AP, 7" Meade and Nexstar 11

Introduction

I had a chance to try these two telescopes side by side, and thought I would share my experiences to help others decide what they think may be best for their particular applications. These comparisons were all done from my yard in Westchester, CA, about two miles from the ocean. My typical seeing conditions will usually range anywhere from 7 to 10 on a scale of 1 to 10. During these tests, I rated the seeing to be 7 to 8.5 with a transparency of about 8. All of my lunar and planetary experiences have come from Newtonian's, apo refractors and Maks, but these GOTO scopes are a wonderful and new experience for me, since I've only star hopped throughout my experience using dobs or GEM's. Most of this review is based on the visual experiences rather than the technical aspects of the scopes, but there are still some comments regarding pointing accuracy, tracking, etc. I would also like to thank Ed Moreno who offered me advice and input. His [review of the Nexstar 11](#) is also available on Cloudy Nights.



Eyepieces and Accessories Used

During my observations, I used two separate Televue binoviewers, so I could compare views in each scope at the same time without having to switch things around, but I also spent most of the night using single eyepieces instead of the bino. Here is the list of some of the eyepieces used. The particular focal length and magnifications are mentioned during the observations. Note, that no barlows or compensators were ever used.

- University Optics Orthos 12.5mm, 18mm.
- Edmund RKE's 15mm, 21.5mm.
- Televue Panoptic's 19mm
- Celestron Ultima's 12.5mm, 18mm.
- Televue Radian 10mm, 14mm, 18mm.
- Televue Plossl 11mm, 15mm, 26mm.
- Parks Gold Series plossl 10mm.

Cooling the Scopes

As far as cooling procedures are concerned, the 11" had more difficulty in this area because I prefer to open the rear cell and point the tube down so the heat can rise out of the back, however, the 11", like most SCT's, has a baffle that leads into the tube about several inches or so.

The difficulty with this is that the heat rises when pointed down and gets trapped around the baffle inside. Even after two hours of pointing it down, I put my fingers into the hole to see if it was cooled and it was completely warm. It would be nice if SCT's had some kind of ventilation with a foam filter so the heat could escape without dust getting in, either at the top or the bottom of the tube. I would not advise pointing the tube down to cool the 11", as I once thought. As far as I can see, there does not appear to be any proper way to cool this scope, so perhaps you will need an SCT cooling fan from Lymax.com.

The 7" on the other hand was a breeze to cool, unlike most reports I've heard. I pointed the tube down for less than an hour and it was completely ready to go, and star tests clearly revealed this. It has a cooling fan which I found to be 100% effective. I'm usually careful when it comes to this issue. Cooling issues appeared to plague the Nexstar 11 for at least two hours during my observations. Just as an experiment, I attempted to run the Meade's fan during my observations and confirmed that it does cause some turbulence to the images as the manual stated, so I left it off and the image was perfectly fine.

Alignment Procedures

The Nexstar 11 seemed to be very user friendly. The motors moved slower than the Meade's, but they were very quiet. This scope is like Rolls Royce. I used both the auto align and GPS alignment procedures, and either one seemed easy to do, in fact it's almost dummy proof. The GPS mode only took about one minute or so to get to the first alignment star, as long as the scope was pointed north first, otherwise the GPS would have to find north itself and that took a couple of minutes. The 7" LX200 is the non GPS unit just before the newer models came out and I simply picked the two alignment stars of my choice. At first it seemed kind of difficult because the Meade's hand controller did not appear to be as straight forward as the Nexstar's. After figuring it out though, the 7" was a piece of cake and the whole procedure took me less than two minutes. I love the way the 7" aligns. Both scopes were easy to align!

Pointing Accuracy

All I can say is that both of these scopes were deadly accurate and the tracking absolutely floored me, in fact I would even go as far as stating that both scopes tracked as smoothly as the finest GEM's I have ever tested, if not better. That's pretty nice for a mount that's tracking in two axis at once. During normal tracking, the motors on each scope were so quiet, I could not even hear them when placing my ear against the base or the fork arms. When the Nexstar 11 moved to an object, it was extremely quiet, so I'm sure my neighbors would be happy campers. The Meade on the other hand was a bit noisy, almost like a coffee grinder, but boy is it fast! It seemed to move twice as fast as the Nexstar and it doesn't slow down to center the object, it just stops on a dime and the target is in the eyepiece, quite

astonishing I must say! The Nexstar 11 slued to its intended target and slowed down to center it, but both scopes were wonderful.

Star Test

I personally do not take this issue too much to heart as most star tests are not intended to be perfect, and most are not anyway. Not only that, but sometimes star tests can change during the cooling procedure as the night progresses. I'm also skeptical about judging any wave/fronsts simply from a star test because this is another topic in itself, which I plan to cover in better detail in a different review. As far as both of these scopes are concerned though, both star tested well within the perimeters of what I would consider good. Ironically, the Nexstar appeared to star test a little bit better than the 7", but it's what I see in the eyepiece at the time of the observation that really counts for me.



Optical Performance

My two intended targets were the Moon and Jupiter. I first experimented with some single eyepieces, and I used two of the same 2" star diagonals in each scope to remove any doubts about them. I'm not particularly impressed with the 1.25" prism diagonals that each scope comes with, so my recommendation would be to upgrade them at your earliest convenience.

I invited an observing buddy over, June Trajano, who is new to lunar & planetary observing. He has learned a lot in just six months and he has a very keen eye for detail now. I started out with an 18mm UO eyepiece in the 7" for Jupiter, which provided 148x. My first impression when looking through this

scope, was how sharp it was, even under seeing conditions which started out at about 7.5.

To keep the comparisons similar, I tried to alter the magnifications in each scope so that they were almost the same. I used a 19mm Panoptic in the Nexstar 11 which gave a magnification of 147x. Although these numbers are somewhat low, I usually magnify according to seeing conditions and work my way up as the night progresses and cools. My first impression in the Nexstar was how bright and colorful Jupiter looked, however, it did appear to look a bit soft, while Jupiter appeared to look more pale and sharp in the Mak, but it wasn't actually producing more detail than the Nexstar. After a while, I still was unable to get the sharpness in the 11" I was looking for, and found myself fussing with the focuser a bit more to find the sharpest view, while the 7" just seemed to snap into focus every time. By the way, each one of these scopes has a minimal amount of mirror shift when altering focus, so I think these two companies have really nailed this issue.

As the night cooled and the evening progressed, I started using more magnification in both scopes. I then inserted a 15mm RKE in the 7", bringing it up to 178x, and another 15mm RKE for the 11", which provided a magnification of 186x. This was still a pretty close magnification.

The 7" at this point was working at 25x per inch, while the 11" was only working at 17x per inch, yet the images in the 7" still appeared to be sharper than the 11". I then started to notice a little bit of fuzziness in the 2 o'clock edge of Jupiter's limb in the Nexstar. This was noticeable when the focuser was racked in an out a bit. Some amateurs believe that collimation is crucial for the best images in a SCT, and I agree. This was an indication that the collimation was not spot on, so June and I adjusted it a bit, and the fuzziness moved down to the 7 o'clock edge of Jupiter. This is just an example of how perfect the collimation needed to be to get rid of it. After a bit more tweaking, it was practically gone.

Even though the collimation was spot on with the 11", Jupiter still did not give me the surface sharpness I was looking for. Every now and then, I could see some detail pop in and out that was not as resolved in the 7", but overall, I felt the images of Jupiter were nicer and more aesthetic in the 7". Detail on average seemed about even in my opinion because the 11" had more difficulty snapping into a sharp focus. There was no question that heat trapped inside the tube had something to do with this. If you want to help verify this yourself, simply rack a bright star slightly out of focus. Tube currents usually move in sporadic directions like little floating bubbles, while atmospheric conditions usually produce an affect like a moving water stream in one direction. I then slued both scopes to the Moon and the differences were quite noticeable. In the 11", the Moon looked brighter and more coffee toned and its features still did not quite snap into focus.

The Mak did it's usual sharp thing, and the coatings appeared to give the Moon the most gorgeous and natural looking grey color I've ever seen. It almost seemed like the Moon had a powdery texture to it, which was absolutely beautiful! Every now and then though, I could see that the Nexstar was still revealing a bit more detail because of its extra angular resolution, but it just wasn't as defined as the 7".

Later on, around 11:30 pm, when the seeing that was an 8.5, I put the TV binoviewers in and went back

to Jupiter again. At this point, I tried a pair of Parks 10mm GS plossls with the 7" at 267x, and although the image was a bit softer and dimmer, I could tell that the seeing was holding the Mak back. When I looked through the Nexstar with the binoviewer and a pair of 11mm TV plossls, I was surprised to see that it finally started to pull some weight at 254x. It finally appeared to be cooled down after a couple hours. For the first time, it looked like the 11" was doing better. It wasn't the sharpest image, but it was about on par with the Mak while using these higher magnifications in both scopes.

Personally, I thought this also had a bit to do with the fact that the Mak looked a little softer at higher magnifications. June admitted that the 11" sometimes showed a bit more detail than the 7", but he still liked the Mak.

Conclusions

Here are some of the things that the Nexstar had going for it. Even though it was revealing more detail than the Mak, I'd say it was only about 20% of the time. It also produced a brighter and more colorful picture of Jupiter, which I liked better than the Mak. It was also able to produce more magnification without the subject becoming too dim, while the 7" seemed to be a bit more limited with magnification, only because it had less aperture and I wanted to keep Jupiter brighter. I sometimes prefer a brighter and more aesthetic appearance on planets, even if it means sacrificing some image scale. The biggest negative I have with the Nexstar is the cooling. I strongly feel that Celestron needs to come up with some ventilation for this scope.

The 7" was without a doubt, the sharper of the two scopes. I loved how it consistently snapped into focus, BANG! You're there.. It also floored me on the Moon because of its very grey color. Although Jupiter didn't look as colorful in the 7", it still produced the image of what a perfect 7" Mak should, which was all it needed to win my vote. It also consistently revealed nice detail, but I'll leave deep sky to the Nexstar. I'm a purist and I prefer images that focus more consistently and by the way, I love the older hand controller on the 7", it looks and feels like something from a big observatory scope. To me, the 7" was the winner in this comparison, and June agreed.

A Brief shoot-out with a 6" AP:

The following night, I called my buddy John Risti, to see if he'd like to compare his AP155EDF to the Mak, and he was very interested. Although the 7" was beaten in every category against his scope, we both commented on how much we loved the Moon in the 7" compared to the AP. Based on all of my experience of using many different apos 3"- 10", I would have to say the 7" Mak is about the equivalent of a 5" apo. Not bad, for a scope that costs about half the coin.

Steady Skies!