PRODUCT REVIEW
by Alan Dyer

ENTRY-LEVEL AUTO-TRACKER

Sky-Watcher's new Auto-Tracking 130mm telescope is a 5-inch f/5 Newtonian on a single-arm fork mount with computer-driven motors that allow it to track objects as they move from east to west through the night.

Setup requires aiming due north plus making an initial adjustment to your local latitude. After that, the telescope can follow objects without any conventional polar alignment. The tube cradle is an integral part of the mount; you cannot adapt other tube assemblies to the mount.

Computerized Beginner's Telescope

A new class of telescope mount promises celestial tracking without the need of polar alignment or the cost of GoTo systems

ALTHOUGH IT LOOKS LIKE OTHER computerized telescopes in its aperture class, this unique model is the vanguard of a new category of altazimuth telescopes. Sky-Watcher calls its new system, available on a variety of entry-level telescopes, "auto-tracking." It provides the tracking ability of a conventional equatorial mount but without the need for polar alignment, a step many astronomy newcomers find confusing.

What the auto-tracking system cannot do is "Go To" objects. While the motors on each axis are computerized, the mount cannot slew to and find objects by itself. Using only the electric slow-motion controls, you must still slew the telescope to objects of interest, aiming it with the finderscope and using traditional star-hop techniques. But once on target, the motors can be switched to Track mode to keep objects in the eyepiece.

In our tests, the auto-tracking system worked very well. On several winter nights of testing, the telescope kept objects in the field of a low-power eyepiece for one to two hours. This is quite remarkable considering that the setup was rough and ready. Here's what you do: Plunk the telescope outside, then turn it physically or with the electric motions so that the tube is level and aimed north, toward Polaris (you must be able to identify north). Turn off the power, then turn it back on (by plugging in the battery pack). That tells the scope it is in its proper start position, levelled and aimed north. After that, you must always find objects by slewing to them electrically—you cannot simply push the scope around like a Dobsonian (the mount won't even turn horizontally in azimuth unless moved electrically).

Initially, another step is recommended: Slew the tube up in altitude so that the angle on the scale reads your latitude, then hit two buttons on the hand controller to store that angle in the memory. This needs to be done only once. After that, the initial setup just requires the level/north-pointing routine. The high-speed slewing rate is quite fast (800x), making it quick to swing the telescope around the sky. Once on a target, you hit another pair of buttons to switch from high-speed slewing to tracking mode. The motor-speed options then drop down to a set of slower speeds (with 8x the fastest) for fine-centring objects.

In testing, I took little care in levelling the telescope and only roughly eyeballed the initial orientation toward north, assuming most users wouldn't be too precise either. Yet the mount tracked targets just fine, as well as any roughly polar-aligned conventional mount would do. The eight AA batteries powered the mount with no problems for several nights, even at sub-freezing temperatures. Two caveats: The tube of this model physically hits the tripod legs when aimed near the zenith, so it can't track through the zenith. And the power plug-to-mount connection on our test unit was a little loose; wiggling it cut the power, requiring the mount to be re-aimed north to restore proper tracking.

The tripod is the lightweight stamped-aluminum unit standard on most low-cost import scopes. It proved perfectly adequate. The assembled telescope is light

HAND CONTROLS All movement must be performed by the small hand controller, which has speed and direction buttons for slewing the telescope and centring objects. The mount can be programmed to "Go To" any of six user-stored positions, but this is of value only for fixed terrestrial targets and only if the telescope is not moved.

TOP-NOTCH QUALITY
Fittings and optics proved excellent for an entry-level telescope, maintaining the high quality we've come to expect from the Chinese-made Sky-Watcher line.

enough that an older child could easily lift it as a unit and carry it outside. Yet it was reasonably immune to vibrations, in part because of the very solid single-arm fork.

As we've come to expect in this recent generation of import reflectors, the optics in this classic 130mm (5-inch) Newtonian proved very good, despite its fast f/5 primary mirror. Images were sharp without any significant aberrations from badly figured or mounted mirrors. The generous aperture provides both crisp images of the planets and relatively bright images of nebulas and galaxies.

The rack-and-pinion focuser and 6x30 finderscope are well made. (Some auto-tracking telescopes come only with simple red-dot finders. While such finders are fine for GoTo scopes, they are unsuitable for a beginner telescope that requires star-hopping to find objects.) The finder bracket attaches to the tube via a Vixen-standard dovetail shoe, making it easy to upgrade to an even larger 8x50 finder should you wish.

Our test telescope, an early unit on loan from Pacific Telescope in Vancouver, also came with a full-aperture Mylar solar filter, a surprising standard accessory. Oddly, the instruction manual made no mention of this (nor any caution about capping the finderscope) and, in fact, contained the standard "Never Look at the Sun" legal warning.

My only complaint was with the 10mm and 20mm eyepieces that come with the scope. While labelled as "long eye relief" and "wide angle," they were neither and had rather poor image quality. With the abundance of good-quality, low-cost Plössl eyepieces on the market, I'm surprised that better-quality eyepieces are not included with a telescope of this upper-entry-level class. My advice: Budget for eyepiece upgrades.

In choosing a beginner's scope, keep in mind that for less than the $460 price of the auto-tracking 130mm, you can buy a conventional 130mm f/5 reflector on a German-style equatorial motorized mount or a 150mm (6-inch) on a bigger equatorial mount, without motor. Yes, both these telescopes would require polar alignment, but for casual use, that requires no more than a rough aiming to north, just as an auto-tracking scope needs. Finding objects is a little easier with a conventional scope, because you can swing the tube around by hand. That said, many people find classic German equatorial mounts confusing, because they don't move intuitively and tubes must be flipped when going from one side of the sky to the other.

Alternatively, and for not much more money (in Canada, typically $500), you can get an almost identical 130mm telescope and mount (for instance, the Celestron 130 SLT, to be reviewed in Jul./Aug. *SkyNews*) with a full GoTo system that will slew itself to thousands of objects, albeit only after a slightly more complex initial two- or three-star alignment of the computer system. Decisions, decisions! All options have their pluses and minuses.

Nevertheless, the auto-tracking 130mm worked extremely well, doing exactly what it promised: to provide tracking with convenient and easy setup. Anyone looking for a good beginner's scope would do well to consider Sky-Watcher's new Auto-Tracking Series and the 130mm reflector, in particular.

SPECIFICATIONS

Sky-Watcher Auto-Tracking Model #13065
130mm (5-inch) f/5 reflector
Supplied with finderscope and two eyepieces
Suggested retail: $460 (available from most Canadian dealers)
Our rating: 4 stars (out of 5)