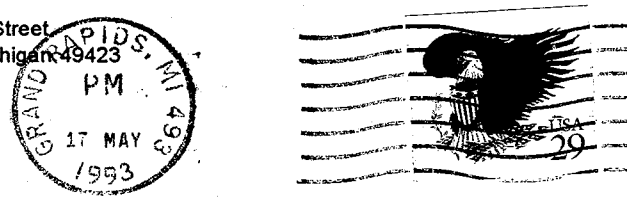
The Shoreline Observer

Newsletter for the
Shoreline Amateur Astronomical Association

President- Mark Logsdon **Vice President**- Gary Stroven **Secretary/Treasurer**- Phil Sherman

Robert Wade, Editor May 1993

3882 62nd Street
Holland, Michigan 49423



May Meeting

The May meeting of the Shoreline Amateur Astronomical Association will be held on Thursday May 20, beginning promptly at 7:00 PM in the West Ottawa Middle School Planetarium in Holland, Michigan.

- Socializing -- maybe even refreshments..
- May Night Sky Tour by Sandy Plakke.
- Eclipse Video
- Gadget Night

April 15 Business Meeting

Like last year, we will set up telescopes in Kollen Park on Friday, May 7 for public viewing after the fireworks.

The May meeting will feature **"Gadget Night"** -- an opportunity to demonstrate some new astonomically related tool, or a time to have club members help you fix some vexing problem with your equipment. Remember **Show and Tell**, well, this is **it**. Bring something. Eclipse videos are also planned.

The **June meeting will be moved** from WOMS Planetarium due to the arrival of summer construction. Instead, plan on meeting at Pine Creek Elementary School, 1184 136th Ave., Holland. This is **quite near** the planetarium. Professor Lawrence Oppliger from Western Michigan University will conduct a **hands-on astronomy workshop**.

The **July meeting will be canceled** (as usual), due to the prevalence of summer vacations during that month. The August meeting will be a combined picnic and Star Party to be held Friday, August 20 at an area park.

Pete reported on the International Dark Sky Association.

Phil deliverd the Treasures's Report: $280.11

Respectfully submitted by Mark Logsdon

Welcome to the many who stopped by our Westshore Mall display during Astronomy Day! This copy of our club newsletter is complementary - we hope you find time to join us during our May meeting.

Buying Your First Telescope - Part 3

A Supplement to Astronomy magazine

Reprinted from the November 1991 issue of *Astronomy* magazine

A telescope buyer's top 30 questions - cont'd

27. *Where can I buy a good telescope?* We suggest shopping at a local telescope dealer if there is one near you (check the Yellow Pages under "Telescopes"). If he is doing his job right he will check each scope he sells, provide good service,answer your technical questions, and perhaps allow you to take home a scope on a trial basis. You can at least see what you're getting before you buy it. This peace of mind is worth any extra cost involved.

Mail-order companies that specialize in astronomy products can also offer personal service (over the phone) and money-back guarantees of satisfaction. We would caution you about some (not all) mail-order firms - their prices may be heavily discounted but at a sacrifice of expert personal service. Some have limited guarantees and no after-sale service - if there is a problem you can find yourself on your own dealing directly with the manufacturer. Also, watch the shipping and packing charges!

28. *What about buying a used telesco*pe? If well-cared for, a used telescope should perform as well as a new one. You can find telescopes in the classifieds in local newspapers and "bargain finders." You should also check with the local astronomy club or *Astronomy's* Reader Exchange. Two newsletters called *The Starry Messenger* and *The Cosmic Exchange* (contact *Astronomy* magazine for their addresses) are devoted to ads for used telescopes.

29. *What telescope would YOU buy?* This is impossible to answer. Someone who has been in the hobby for a while and who has already owned several telescopes would not select the same scope a first-time buyer would. Some people prefer the solidness and precision of a fine-quality refractor, others like the aperture and versatility of a Schmidt-Cassegrain, while others prize the light-gathering power and simplicity of a large Dobsonian reflector. There is no single best telescope. In fact, chances are the first telescope you buy will not be the last. Many backyard astronomers happily own two or three telescopes, each outstanding for a certain type of viewing.

30. *I have a child interested in astronomy. What scope should I buy?* My budget is $200. Avoid low-cost 500-power "department store" 50mm and 60mm refractors. Their poor mounts, eyepieces, and finderscopes will almost certainly make these telescopes a disappointment.

The better 60mm refractors on alt-azimuth or equatorial mounts with slow-motion controls and a decent 6x30 finderscope can serve as starter scopes if your expectations are well-tempered. Acceptable models are available from astronomical dealers (such as those who advertise in *Astronomy*) and local telescope stores. But the truth of the matter is that for $200 (a common budget of parents with young astronomers), there are few telescopes on the market we can endorse.

Instead, we, and many astronomy educators, usually recommend a pair of 7x50 binoculars combined with a set of introductory books and star atlases, a package that will cost $100 to $200. Binoculars can reveal a surprising number of celestial objects (craters on the Moon, the moons of Jupiter, deep-sky objects such as star clusters and nebulae). *A year spent exploring the sky with binoculars and a star chart can teach any novice astronomer, young or old, an immeasureable amount about the sky, the identity of stars and constellations, and the locations of celestial targets.* If your prospective astronomer is still interested in the hobby after a year of binocular stargazing, then purchase a decent telescope for $400 to $500. At that point you will be more confident that your money will be well-spent.

Telescope pros and cons

Achromatic Refractors (60mm to 5-inch) Advantages: Economical in smaller sizes; rugged; portable; easy to aim; usually provide sharp images. Disadvantages: Small apertures have limited light-gathering power; larger apertures exhibit chromatic aberration.

Apochromatic Refractors (3- to 7-inch) Advantages: Provide high-quality images near perfection; excellent for lunar and planetary viewing; fast models good for wide-field, deep-sky viewing and photography. Disadvantages: Relatively expensive for the aperture; light-gathering power cannot compete with that of larger reflectors.

Equatorial Newtonian (4- to 18-inch) Advantages: Large aperture for the money; small sizes are excellent scopes for serious beginner. In f/6 to f/8 designs they are good all-purpose scopes. Disadvantages: Can be very bulky and heavy in sizes over 8-inches; mirrors require adjustment; mirror surfaces are exposed and can get dirty.

Dobsonian (8- to 20-inch) Advantages: Biggest aperture for least money; portable for the aperture; superb for deep-sky observing, easy to set up (no polar alignment); great for dark sky sites. Disadvantages: Optical quality in low-cost models is a compromise; mount does not track the stars; mirror collimation critical in fast f/ratio models.

Schmidt-Cassegrain (4- to 14-inch) Advantages: Very portable for an equatorially-mounted scope; easy to set up and aim; adaptable for astro-photography; expandable systems with many accessories; excellent general-purpose telescopes. Disadvantages: Outperformed by specialized telescopes for planetary (refractors and long-focus Newtonians) and deep-sky viewing (large Dobsonians); corrector plates attract dew.

Buyer's checklist

Does the scope have sufficient aperture? We suggest at least a 4-inch telescope for viewing for deep-sky objects.

How good are the optics? Will the dealer provide a guarantee of satisfaction? How steady is the telescope? After a light tap, vibrations should damp out in 1 to 2 seconds.

How portable is the telescope? Can you carry it easily? Will it fit in your car? How easy is it to set up? Is the mount complicated? Heavy? Does it require tools? Does it have a drive motor? Is it AC or DC? DC drives can run directly from batteries and have a wider range of speed controls.

Does the mount have slow-motion controls? These make it easier to aim the scope and follow objects.

Does it have a separate finderscope? Finders that sight through the main optics are usually very poor.

How large is the finderscope? A 25mm-aperture finder is poor, a 30mm OK, a 50mm apeture finder such as an 8x50 is best.

What diameter eyepieces does it come with? 0.965-inch--diameter models are usually of poor quality. 1.25-inch diameter eyepieces are better and are available in a wider range of focal lengths and designs.

How good are the eyepieces? Orthoscopic and Ploessl eyepieces (often included as standard equipment) are better than Kellner eyepieces which in turn are better than the poor Huygenian eyepieces included with many import scopes.

Does it come with a case? It's useful if you will be transporting the scope.

How expandable is the telescope? Is there a good array of accessories available? Does it come with a warranty? And who will honor the warranty with service?

Star Catalogues and Charts
A Brief History--Part 2

by Bill Gwynne
Cincinnati Astronomical Society

For our second catalogue we will examine the Smithsonian Astrophysical Observatory (SAO) catalogue of stars. The SAO was started in 1959 as the scientific and military community realized that it was going to have to keep track of all these satellites that they were sending up. It was their intention of compiling a large computer accessible catalog of stars to aid in developing a system for tracking artificial earth satellites and accurately locating their positions.

Made possible with funding from NASA, the compilation was overseen by Dr. George Veis whose staff of seven had the unenviable task of compiling a star catalog of the whole sky! By the time they were done in 1966, the SAO had 258,997 entries down to magnitude 14 (although there are only 41 stars fainter than mag 11); including 8,712 double stars and 499 variables. The catalogue was to give both position and proper motion data for the stars.

Like any survey of this magnitude, you don't start from scratch. The SAO is actually comprised of the best parts of many other catalogues. For instance the Yale Bright Star catalog is used to cover the areas of -30° to +30°, +50° to +60°, and +85í to the pole. The *Yale Bright Star Catalog* was initially compiled by F. Schesinger & I. Barney (first six installments) from 1939-43 Barney continued updating from 1945 to 1954.

The SAO uses all or parts of the FK3 & FK4 (*Fundamental Catalogues* by A. Kopff 1934 & 1963 respectively), the *General Catalogue* (1937), and the *CAPE Southern Sky Survey*. The AGK2 (a German compilation) fills in where the Yale is not used; *Melbourne General Catalog* (Me3 & Me4) is used for the extreme south; the AGK1 was used to compute proper motions of the AGK2 stars; and the Barney catalogue was used for proper motion data as well.

When catalogs were used that didn't include data on proper motion, it had to be calculated from older cata-

logs of the same area of the sky and their data updated for inclusion in the SAO.

It became apparent that such a comprehensive catalog would be extremely useful to everyone so it was expanded to include data on visual and photographic magnitude, spectral type, as well as the original source catalog and star number along with their standard deviations.

The SAO is the grandaddy of all star catalogs, eclipsed only in recent years by the Hubble Space Telescope Star Catalog. When you see a finder chart in the magazines for some distant asteroid, Pluto, or an occultation event, there is almost always an SAO star given as the one to locate the proper starfield.

Astronomical Terms 2

Here is another chance for you to inflate your vocabulary with the second installment of our three month home study short course in Astronomical Terms. Quizzes will be graded at the next monthly club meeting. Try quizzing your friends after you've learned the correct answers. They're sure to be impressed!

1. Astrolabe (a) A laboratory dedicated to astronomical research. (b) A two dimensional working model of the heavens. (c) Carl Sagan's Labrador retriever.

2. Ataxites (a) Seasonal IRS workers. (b) A family of long period comets. (c) Structureless nickel-rich iron meteorites.

3. Barycentre (a) British term for "close to the centre". (b) Geometrical center as opposed to the center of mass. (c) Center of mass of the earthmoon system.

4. Chandler period (a) Time of the movement of the Earth's rotation axis about its axis of figure, about 430 days. (b) Time between intensity maximums of Cepheid Variable stars. (c) Another name for the solar cycle.

5. Coma (a) A comet which is only visible photographically. (b) Italian for "come here". (c) An off-axis lens aberration typically resulting in points of light appearing comet or fan shaped.

6. Culmination (a)Common mispelling for collimation. (b) Maximum altitude of a celestial body above the horizon. (c) Point at which a celestial body crosses the observers meridian. (d) All of the above.

7. Dawes limit. (a) Measure of the resolving power of a telescope. (Resolution in arc seconds equals 11.58 divided by the telescope aperture in centimeters.) (b) Theoretical faintest star magnitude visible with the unaided eye under perfect conditions, mag 7.4. (c) Maximum length of time you can observe before your feet get too cold.

8. Declination (a) Synonym for inclination. (b) Tendency to say no. (c) Distance in degrees north or south of the celestial equator.

9. Dichotomy (a) Exact half phase of the moon. (b) Point between two masses where a third point mass is equally attracted to both masses. (c) Maximum separation of a binary star system.

10. Dubhe (a) Brightest of the two pointer stars. (b) Early Arabian scholar/astronomer, circa 350 A.D. (c) Little known amateur astronomer who studied the eclipse periods of non-gravitationally bound apparent double stars.

Answers: 1. (b) 2. (c) 3. (c) 4. (a) 5. (c) 6. (d) 7. (a) 8. (c) 9. (a) 10. (a)