



# the Spectrum

BUFFALO ASTRONOMICAL ASSOCIATION INC.  
BUFFALO MUSEUM OF SCIENCE  
HUMBOLDT PARKWAY  
BUFFALO NEW YORK 14211

Editor:  
Lawrence M. Carlino

NOVEMBER - DECEMBER 1977

**NOVEMBER MEETING:** The November 11, 1977 meeting of the B.A.A. will be held beginning at 8:00 P.M. in the New Science Building Auditorium of the State University College at Buffalo (Buffalo State). Featured speaker at the meeting will be well-known Rochester area astronomer Ralph Dakin. Mr. Dakin, a resident of Pittsford, New York, and an engineer at Bausch and Lomb Corporation, will speak on "Telescopes and Observatories". His expertise in the construction of various astronomical instruments and first-hand eclipse observing experiences should make for a highly informative and enjoyable presentation.

**DECEMBER MEETING:** The annual B.A.A. "Christmas Party" will commence at 8:00 P.M. on December 9, 1977, again at the Buffalo State Science Building Auditorium. This traditional evening of conviviality will be punctuated with Edith Geiger's legendary "Candid Camera" slide show of B.A.A. members attempting to dodge her omnipresent blinding flashbulb. In addition, several club members will offer short presentations of general interest to all.

\*\*\*

## NEWS NOTES:

An exhibit of astronomical drawings and photos made by B.A.A. members is scheduled for January 1978 in the Buffalo Museum of Science, thanks to the work of Ernst Both and Tom Dessert. Any B.A.A. member having astrophotos, drawings, or sketches worthy of exhibit is strongly urged to contact Tom Dessert (652-5530) in order to arrange for their incorporation into the showing. Let's not make this an exhibit dominated by work of only two or three participants, but a true representation of the skills and talents of many B.A.A. members.

\*\*\*

May of 1978 will see the initiation of an exciting event -- The Edward Lindberg Telescope Competition. The contest provides the opportunity for those B.A.A. members (and the general public) who have built telescopes of various types and sizes to display their handiwork in competition for valuable prizes. Bob Mayer will head the judging and will select winners based upon the construction, performance, and "economy" of materials found in each instrument. The tentative categories and prizes are as follow:

	<u>FIRST PRIZE</u>	<u>SECOND PRIZE</u>	<u>THIRD PRIZE</u>
4-inch	\$25	trophy	certificate of excellence
6-inch	\$50	"	" " "
8-inch	\$75	"	" " "

In addition, a club trophy with the inscribed names of the winners

in each category will be acquired and kept as a permanent B.A.A. display. Awards will be presented at the June 1978 B.A.A. general meeting after the actual competition judging at the May Meeting of the Instrument Section at the Museum of Science.

\*\*\*

The Fall 1977 meeting of the Niagara Frontier Council of Amateur Astronomical Associations (NFCAAA) will be held on Saturday, November 5, 1977 (2 P.M.) at the State University College at Buffalo. The B.A.A. is host for the meeting, and all interested members are cordially invited to attend. Registration will be held in the Science Building from 1:30 to 2:00 PM, with the program commencing at 2:00 P.M. The program will consist of short reports, papers, and slide presentations in the fields of astronomy, astrophotography, telescope making and allied subjects. A planetarium show presented by Dr. James Orgren and dinner presentation by Dr. Jack Mack of the College highlight the activities.

Ed Lindberg (633-6725) will provide additional details for those interested in attending.

\*\*\*

#### FROM THE SECRETARY

The B.A.A. welcomes the many new members who have joined the club in recent months. I think it's a good idea to acquaint you, and other members as well, with the club's administration.

Our four officers and other members of the Board are:

President: Dr. Fred Price

Vice-President: Ken Biggie

Secretary: Rowland Rupp

Treasurer: Joe Provato

Member-at-Large: Larry Carlino

Member-at-Large: Walt Whyman

Member-at-Large: Bob Mayer

College of Fellows: Ed Lindberg

Museum of Science Representative: Dr. Jack Mack

Observatory Director: Tom Dessert

Here are some other posts that are important to our club's well-being. These positions are more or less permanent, although the people who occupy them change. Other jobs that are filled when the need arises exist from time to time, but are not given here.

Representative to Beaver Meadow: Ken Biggie

Representative to Astronomical League: Ed Lindberg



Representative to NFCAAA: Ed Lindberg  
Spectrum Editor: Larry Carlino  
Instrument Section Chairman: Ed Lindberg  
Membership Chairman: Edith Geiger  
Publicity Chairman: Ken Biggie  
Hostess: Marty Dessert

Attend our Instrument Section meetings. Make use of our observatory. Help us get better publicity. Contribute to The Spectrum. Tour the local observatories with us. Get up and report at our meetings. If you think our club should engage in other activities, tell us.

Please introduce yourself to the officers and other members of the club; that's why they wear name tags. Come on, participate!

Rowland Rupp

\*\*\*

### SPY AND TELL

Steve Jaworski, who learned scuba diving in Hawaii, returned early in October from diving off the coast of Nicaragua. He has taken off again for Florida for more of the same. He reports that the many fish he sees look like those in the underwater shots on TV. \*\*\*

Congratulations to Charles Miess for having his two excellent astro-photos accepted by Sky and Telescope for publication in the October 1977 issue on pp. 344 - 345. \*\*\*

In early October, Dick Zygmunt entered the "Run for Your Life" marathon sponsored by WBEN. It was a 12½ mile run, and we're very happy to relate that Dick completed the run. Congratulations! \*\*\*

Orrin Christy's new observatory is almost finished. \*\*\*

Ruth and Darwin Christy went to York, Pennsylvania, for their annual honeymoon trip. At this time every year they travel somewhere to celebrate their anniversary (Oct. 14). \*\*\*

Ken Biggie is a motorcycle enthusiast, and you'll find him spinning about most every night of the week. \*\*\*

Philip Cizdiel is busy studying variable stars. \*\*\*

In the group picture on page 278 in the October issue of Sky and Telescope, you can see one of our former members, Alan Pattee, who is a student at the University of Colorado. If you have any trouble finding him in the picture, check 32 mm from the right and 65mm from the bottom.

Clark R. Chapman, son of the late Dr. Seville Chapman, has written a book, The Inner Planets, published by Scribner's. \*\*\*

Edith L. Geiger

\*\*\*

### FOR SALE

	A fine 4-1/8 inch (104.7mm) telescope.
	Type: Astronomical Refractor with F/15 Jaegers objective lens corrected for C and F lines.
A \$1500	Finder scope: Unitron 25mm x 10 power (mounted coaxially)
value	Accessories: 5 eyepieces (one terrestrial), star diagonal, 10x
for	filari micrometer, 3x Barlow, mahogany carrying case
\$500	Mount and Tripod: German equatorial with axis clamps and 6-inch
	setting circles, commercial heavy-duty, rigid leg type
	tripod with mount adaptor and plumb line.

Contact: Dick Zygmunt (877-7625) for demonstration or further information.

## AUTOMATED MIRROR SURFACING

The original objective of the surfacing machine was to free the mirror maker from the tedious task of grinding and polishing the optical surface. Originally designed to surface a  $4\frac{1}{4}$  inch Cassegrain secondary, it has yet to do anything but larger concave primaries. It can easily handle an 8-inch mirror. With its bowl-feel mechanism for the abrasive and coolant, the unit is self-operating, requiring the operator's attention every four hours or so. With very liberal abrasive time cycles, it still was able to finish the grinding and polishing of an f/3.5, 8-inch mirror in 6 days elapsed time. With no hand correcting needed, the spherical figure tested to better than  $1/20$  wavelength.

The machine is constructed on an open framework of 2x4's and a central 2x6. All wood surfaces were liberally varnished. In the center is the work piece spindle. Driven through a belt by a  $1/8$  horsepower gearmotor at approximately 45rpm, the spindle has a 0.600 inch pilot topped off with a  $5/8$  inch long section of  $\frac{1}{2}$  x 13 thread. This allows other spindle adapter plates to be screwed on and used. The standard spindle is an aluminum hub with two 9-inch diameter,  $1/8$  inch thick aluminum plates sandwiching an inverted 14" frisbee. (Such a large frisbee handles very poorly even in the lightest of winds. It seems a fitting retirement to end up on a mirror making machine.) Adapting clips and brackets are fastened to the top aluminum plate to hold the mirror, tool, or pitch lap.

The oscillating motion is provided by spindles at two of the frame corners 90 degrees apart. These are both belt-driven by a second identical  $1/8$  hp gearmotor at about 55 and 60 RPM respectively. Eccentric plates are attached on top of each spindle into which multiple holes are drilled and tapped at different distances from the centers of rotation. Shoulder bolts are screwed into one of the holes on each plate. The operator has a wide range of stroke length available by placing shoulder bolts into the various off-center holes. Tubes are driven by the two oscillating eccentric spindles and are centrally attached at the oscillating hub. Here a shaft provides a pivot point for each of the arms and rotating joint on which the mirror or tool is driven in an oscillating motion. The motion is essentially a Lissajous pattern approximating a pseudo-random circular oscillation.

In operation, the bowl is charged with about six ounces of water and one ounce of abrasive. The workpiece spindle rotation centrifugally forces the water and abrasive to the rim of the frisbee. Here it is scooped up and directed back to the glass pieces by means of a small scoop fabricated from a plastic 35mm film container. The scoop is supported by coat hanger wire mounted to a scrap machinist's indicator base.

Typically, grinding and polishing cycles take about twice as long as when done by hand. The machine, however, takes no breaks, does not require sleep, nor does it stop to admire the mirror's surface every few minutes. It costs absolutely nothing. Fabrication of parts and assembly required 90 hours. It was time well spent. Further questions or inquiries are welcomed.

Orrin D. Christy  
255 Brookside Terrace  
Tonawanda, NY 14150

# MIRROR SURFACING MACHINE

24"  
MAIN SPINDLE  
DRIVE MOTOR

26"  
SURRY-COOLANT  
SCOOP

Bowl (14 1/2" FRISBEE)

45 RPM  
ECCENTRIC  
SPINDLE A

ECCENTRIC DRIVE  
MOTOR

60 RPM  
ECCENTRIC  
SPINDLE

DATE 11/19/72



## B.A.A. PROFILE

Dr. Fred W. Price

Born in London, England, Dr. Fred W. Price followed a scientific career which eventually led him to the United States and to the presidency of the B.A.A.

He grew up in the war years when nightly bombings by Hitler's Luftwaffe during the "Blitz" on London were a constant threat. Air raids and a scurry to trenches and shelters were a dreaded almost daily occurrence. Fred tells of a bomb dropping only 200 yards from his home, and of his mother seeing Nazi bombers in a daylight raid, during the Battle of Britain, come out of the clouds to be chased by British fighter planes. Those were not pleasant years for a seven-Year-old boy.

Fred became interested in astronomy when he was nine or ten years old. His elementary teacher recognized a budding astronomer and arranged for his speaking debut on astronomy before a class of older boys. After elementary school, Fred's mother presented him with a 1.5 inch naval refracting telescope which Fred used all through high school.

After graduating from high school, he went to the University of Bristol from which he graduated with a B.Sc. degree in chemistry and zoology. During his years at Bristol he had set astronomy aside while he pursued his studies in other scientific fields.

Following graduation came three years of military service in the Royal Air Force, where he trained as a pathology laboratory technician. At the termination of his military service, he headed back to the university to pursue a course toward a higher degree, this time to London.

At King's College, University of London, Dr. Price received his Ph.D. in biochemistry in 1963. His thesis supervisor was the noted Dr. J. F. Danielli. While working on his degree, Fred was a paid research worker with the British Empire Cancer Campaign.

His interest in astronomy was renewed when, in the library at King's, he came upon Wilkins and Moore's book, The Moon. Shortly thereafter, he purchased a 3-inch refractor and from that time on, astronomy became an important part of his life, and he became a member of the esteemed British Astronomical Association.

Dr. Price came to the United States aboard the Queen Mary in January 1963. He was a member of the research team that had worked together while he was at King's College. The group, headed by Dr. Danielli, settled in the University of Buffalo where they continued with the same work which they had started in England.

While at the university, Fred became acquainted with Dr. Lyle Borst who let him use the 10-inch Cassegrain reflector in the observatory of the Physics Department. Then came the great night when he attended his first B.A.A. meeting. He remembers it well. He also remembers that his elation "knew no bounds" when Ernst Both let him use the museum's 8-inch refractor.

Fred remained with the cancer research team at the university for 18 months. He had been offered a position at Roswell Park Memorial Institute and feeling a need for a change of environment, left the research team to become a cancer research scientist at that famous clinic. While there he did research on biochemical aspects of virus-induced cancer in rodents.

During the summer research participation programs at Roswell, Fred discovered that he liked working with students and wondered if he would be happier as a teacher. Dr. Edwin Mirand of Roswell Park, who knew the Dean of Arts and Sciences at the Buffalo State University College, recommended Dr. Price for a position there, so after three years at Roswell Park, Fred was hired in the Fall of 1967 as assistant professor in the Biology Department at Buffalo State. Within a year of being hired, he was promoted to associate professor, and since 1975 he has been a full professor. He teaches cell biology, molecular biology, molecular genetics and enzymology, and he is highly respected by his many students.

You will find some of Fred's published papers in scientific and educational journals. He has also finished writing a college text book, Basic Molecular Biology, which is being published by John Wiley & Sons of New York. It will be available to the public next year (1978). The book is dedicated to Fred's parents who always encouraged him in his educational pursuits. For one year before coming to the United States, Dr. Price was editor of the Journal of the Queckett Microscopical Club, a nationally known and respected microscopical journal in England.

Dr. Price is a member of the American Association for the Advancement of Science, the National Association of Biology Teachers and the Scientific Research Society of North America (Society of the Sigma Xi).

Fred gave his first talk to the B.A.A. at a joint meeting of several regional groups at the University of Buffalo in October, 1963. He has since been a speaker on astronomy at De Veaux High School in Niagara Falls, the Lockport Astronomical Association, the Rochester Planetarium, and the Northeast Regional Convention of the Astronomical League.

His special astronomical interest is in lunar observation, and he is interested in the several theories concerning the origin of lunar formations. He finds himself baffled by the discrepancies among the observations of selenographers through the years and diligently checks his own observations against the recorded observations of the past. Of late, he has become interested in the ever-changing cloud belt patterns of the planet, Jupiter. Fred observes with an 8-inch reflector.

In recent years he became acquainted with Patrick Moore, well-known amateur astronomer and author of numerous books on astronomy. He also enjoyed the friendship of the late William Morley Baxter, former director of the solar section of the British Astronomical Association and author of The Sun and the Amateur Astronomer.

Along with his scientific career, Fred has a deep feeling for music. He started the study of piano at 10 years of age, and was playing Beethoven and Haydn sonatas when he was 15 and 16. Fred still plays the piano and enjoys, especially, Beethoven's "Pathetique" and "Appassionata" sonatas. He is also fond of the Chopin preludes and polonaises.

While at Bristol, Fred had a sudden flare for the organ after seeing and hearing Clifford Harker, the cathedral organist, playing at services and recitals. Mr. Harker became Fred's teacher. Fred's love of the organ has endured and he occasionally plays for services at St. John's Episcopal Church in Buffalo, and has given a few recitals there for close friends. He enjoys playing the organ works of J.S. Bach, and loves to listen to his records of Mendelssohn sonatas for the organ, and the organ works of Bach, Buxtehude and Healey Willan. Fred is also fond of orchestral and choral music, his great favorite being the music of the English composer, Sir Edward Elgar.

Dr. Price is talented in art and had informal lessons in painting while in England. We are all acquainted with Fred's fine lunar drawings and paintings. He also paints landscapes, still life and architecture, with his favorite media being oil and water-color. Scenery and architecture are among the subjects he also enjoys in his hobby of photography.

He is an avid reader and over the years has accumulated a considerable library of books on many subjects. Another hobby of Dr. Price is a biological one. Though he is a cell biologist by profession, summer finds him at home in England by freshwater ponds and streams enjoying the microscopic study of the life therein.

We are grateful that England has shared one of her sons with us. Dr. Price has been on the B.A.A. Board of Directors for a number of years and he has served twice as our president. His warmth, kindness, knowledge and sense of humor have brought joy to his many friends in the United States.

Edith L. Geiger

\*\*\*

#### METEOR NOTES: November - December

On November 3 from a radiant of 3h 40 min. R.A. and 15 degrees declination, we can see the Taurids. These are known as the Southern Taurids or Taurid-Arietids. Because of the time, they can be confused with the Northern Taurids following on the 10th. They have a medium trajectory and velocity, and an average magnitude of 3.5. It is believed that they are a remnant of Comet Encke, and about 15 can be counted hourly.

The Northern Taurids reach maximum on the 10th of November. This is supposed to be a major shower, although only about 5 hourly are to be counted. They are a stream type which means they are annual. They have a slow, medium-length trajectory with a reddish hue. Their average magnitude is 4.5; and, as some astronomers write, they are a direct result of Temple's comet 1866I. I have my own reasons of doubting it, one of which is that Temple's comet did not have the orbit these Taurids follow. (Another reason is given as you read about the Leonids below.)

A hard meteor shower to find is on the 11th of November - the Mu Pegasids. Little has been observed of this shower, but it is known to have been a result of comet 1819IV. The average hourly count has also been established to be seven. More observations have to be made to acquire more information on this shower.



Another hard-to-find meteor shower is the Arietids on the 12th of November. Twelve hourly have been counted in the past, but not much else has been discovered about them.

Comet Biela produced the Bielids which could also be called the Andromedids. The comet was seen in 1826, but in 1877 and again in 1885, as many as 10,000 meteors were counted in one hour. It is an irregular type shower which results in a variable count each year and is almost impossible to predict. These occur on the 14th.

One of the major showers is the Leonids on the 16th of November. These run for about four nights with maximum being on the 16th. These are showers which are really from Temple's comet 1866I. This comet must have appeared before 1866 as there were as many as 10,000 seen in 1833. In 1899, about 1000 were seen hourly. In 1965 it was predicted that about 1000 would be seen hourly, but clouds disrupted any observations. In Texas, though, many were seen from an aircraft above the cloud cover - an estimated 100,000 was the count observed. They are an annual type shower as well as being an irregular one; they produce very long, swift streaks of about magnitude 3.5 and are deep bluish in color. The count is variable, but in any year about 20 can be seen hourly. If anyone can stand the cool weather, it would be worth the time to observe it.

Another comet-related shower is on the 28th of November. These are the Andromedids from Comet Biela 1852III. They could or could not be related to the Bielids which occur on the 14th. The reason is that a comet breaking up could produce two paths of orbit which would occur on different dates. They are irregular and variable, and not much has been done to get information about them as they last for only about five hours. Most of these five hours have been in the daytime period, thus prohibiting any observations of them.

Did anyone ever hear of BLANPAIN's comet? If you live in the southern hemisphere, you might have. The meteor shower Pheonids which occur on the 5th of December are a result of that comet. According to astronomers, they produce as many as 50 hourly, but not up here in the northern hemisphere. Their duration is only 12 hours, so one would have a 50-50 chance of seeing any if he resided in the southern area.

A very good shower to watch is the Geminids on December 13th. This is an annual shower which gives a nice display of about 40 to 60 hourly. They are short and swift with an average magnitude of 2.5. Their color is a brilliant white to yellow, and the shower's duration is four days. This is one of the major showers recorded.

On December 22nd, we can see the annual Ursid shower. The count varies from only 5 to 15 hourly throughout its seven day duration. It is a result of Comet Tuttle 1939. I know it is not for the summer observer, but it would be nice for some of us to turn into winter astronomers!

10

A shower which never seems to get into THE SPECTRUM is the January 3rd Quadrantids. This is probably the most spectacular one of all. It is annual, and as many as 100 can be seen hourly. It lasts for only 6 hours which means it has to be calculated as to whether or not you might see it at night some time. By my calculations for 1978, it should be seen starting at 3:30 AM and into daybreak on the 3rd. They are long and slow and very white with an average magnitude of 3. The coordinates for this shower are 15hr 20 min. and +52 degrees declination. It is from the former constellation known as Quadrans Muralis which is now the northern part of Bootes.

Any observations anyone makes and records, I would certainly appreciate having to put into my records for future writings.

Darwin Christy

\*\*\*

SKY TEST - Due to lack of space, the Celestron 8 test will be printed in the January - February issue.

The Buffalo Astronomical Association, Inc.  
c/o Lawrence M. Carlino, Editor: The Spectrum  
453 Niagara Falls Blvd.  
Buffalo, New York 14226

FIRST CLASS  
=====