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

the Spectrum

Editor: Ernst E. Both

FEBRUARY - MARCH 1975

FEBRUARY MEETING: February 14 (Friday), 1975, at 8:00 p.m. in the Club Room of the Buffalo Museum of Science. Dr. Antoinette Mann Paterson will be our featured guest speaker in a lecture entitled "Socio-political Aspects of Cosmological Models. Dr. Paterson is Professor of Philosophy at the State College at Buffalo and has authored two books: "The Infinite Worlds of Giordano Bruno," 1970, and "Francis Bacon and Socialized Science," 1973. This promises to be a very interesting program and we are very happy to welcome DR. PATERSON!

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LOCKPORT ASTRONOMICAL ASSOCIATION: Their February meeting (Feb. 18, 8:00 p.m. at the Lockport High School) will feature Dr. Lyle Borst in a lecture "Problems of the Expanding Universe." Members of our organization are welcome to attend. If you have any questions on how to get there, see Darwin Christy at our next meeting.

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BEAVER MEADOW OBSERVATORY REPORT No. II By Asterios

The fund drive for the Beaver Meadow Observatory is off and running. As of January 15, $ 1,420 has been raised. By February this figure will be surpassed and updates will be given at the general membership meeting.

Letters and pledge cards have been sent out to all of our members who have not as yet contributed. Please respond to this appeal as quickly as possible. The sooner your donation is in the observatory fund, the longer we will be able to draw interest on it, and every little bit will help.

You may recall that a year ago we were considering the purchase of a ready made dome for the observatory. Unfortunately, the price of this dome was so high it constituted fully one half of the cost of the entire observatory! To alleviate this problem, Bill Deazley and Bob Mayer are presently working out plans for an all metal dome which would cost approximately $ 1,000. In addition, Bob Mayer expects to complete the telescope modifications by April or May.

At the February meeting of the Buffalo Audubon Society, John Riggs gave a short presentation on amateur astronomy in an effort to create some more enthusiasm and, hopefully, more contributions for the observatory.

Sheldon Merritt, President of Buffalo Audubon, has given a number of lectures to various local clubs about Beaver Meadow and has contributed his lecture fees to the observatory fund. Also, at Audubon's espense, another batch of letters seeking support was sent out to local businesses by Elaine Deazley, whose efforts are greatly appreciated.

MANY THANKS to the following people who have contributed to the Beaver Meadow Observatory fund: David Bigelow, Ken Biggie, Bruce Cook, Tom Dessert, Carl Kalweit,

Marcus Lawson, Sheldon Merritt, Sheldon Merritt Jr., Carl Milazzo, Alan Pattee, Alfred Ricciuti, John Riggs, Gretchen Schork, David Steinagle, Warren Steinberg, and Charles Wood. REMEMBER CONTRIBUTIONS ARE TAX DEDUCTIBLE!!

Ed. Note: The raffle at the January meeting brought in about $ 36.00. Since proceeds from the raffle go to the observatory fund, we appreciate the interest our members and friends show in these affairs and are grateful to those who contribute items to the raffles. At the February meeting a book about Sir John Herschel will be raffled and our thanks go to Walter Whyman who contributed it. Special thanks go also to Edith Geiger who worked very hard to make the Philharmonic concert last fall a great success. Proceeds from this venture likewise have gone to the observatory fund.

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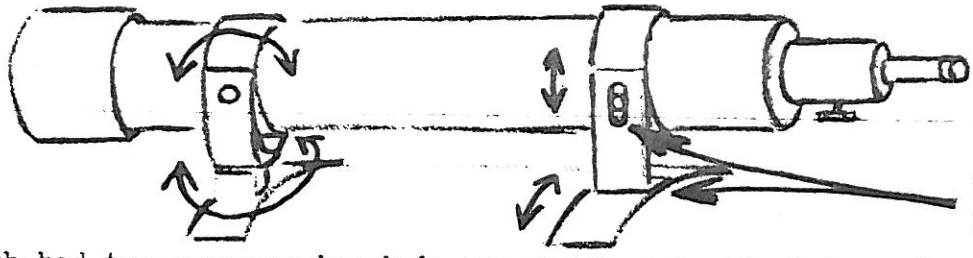
* BAA INSTRUMENT SECTION REPORT - JANUARY MEETING * By Warren Steinberg

Bob Mayer is another one of those people who enjoy not only the creation of new ideas but the employment of them. A good example is his unique method of suspending the 4¼-inch guide scope which will be used with our association's 12½-inch telescope now being refurbished by Bob.

(Note: a lever with a lock is to be added; it is not shown here.)



Only two adjustements required.

Bob had two concerns in mind: one was to get rid of the nuisance of fooling with six adjustment screws which, historically, floated the guide scope between the mounting rings. His other concern was to provide a rigid suspension to reduce any sagging, therefore providing an accurate guidance system. The front of the refractor (see diagram above) is held onto the main tube by a gimble so that the refractor tube can move freely even though there is no adjustement at this point. The rear of the refractor is attached to a right angle where the only two adjustements are made to lock onto a star.

Tom Dessert also mentioned that the guide scope will be mounted on the rings which support the main telescope in its mount, rather than directly on the main tube. The idea behind this is that the refractor would not interfere with the rotation of the main tube and the guide scope would be readily accessible. Undoubtedly this telescope and the new observatory will be among the finest in Western New York!

Later in the evening Ed Lindberg discussed the problems associated with pyrex telescope mirrors which have been chipped. Ed remarked that chipping tends to produce internal fracturing; if the chip is on the edge (where it most likely will occur), the edge can be rounded off in the area with a stone to reduce further damage which may occur. Sometimes it is best not to touch the area at all since the fracture (or feather) will tend to spread with the least irritation.

Other discussions included: different designs for dome shutters for our new observatory (since no decision has been made, suggestions are very welcome); pattern

making for aluminum casts; pitch laps were discussed by Carl Milazzo; and counter-balancing with cider jugs was described by Ed Lindberg.

We usually have good and informative times at these meetings, so if you are interested, be sure to make the next meeting: February 28, 1975, at 8:00 p.m. in the Humboldt Room of the Buffalo Museum of Science. SEE YOU THERE!!!

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* OF MOON CITIES AND SELENITES * By Ernst E. Both

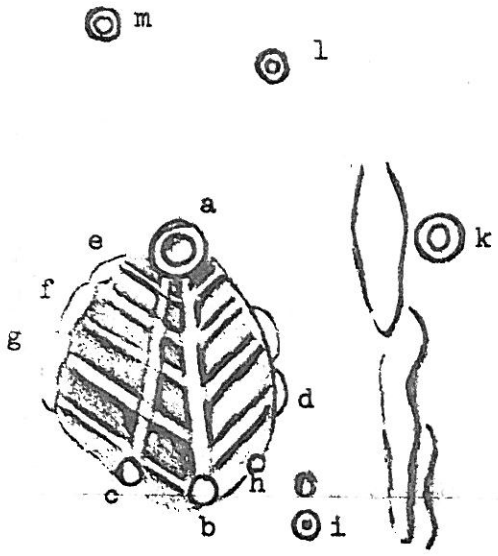
In 1824 a respected scientific journal published an article with the startling title: DISCOVERY OF MANY OBVIOUS INDICATIONS OF SELENITES, ESPECIALLY OF A GIGANTIC ARTIFICIAL STRUCTURE. Its author, Franz von Paula Gruithuisen (the "von" does not indicate nobility, merely that he was named after St. Francis of Paola, rather than the more famous St. Francis of Assisi) was well-known to his readers as an astronomer, physician, and natural historian. As a student of the Moon he appeared to be a worthy successor to Johann Hieronymus Schroeter (1745-1816), THE authority concerning lunar matters during the late 18th century. Schroeter devoted most of his adult life to an avocational study of astronomy and he authored two large, rambling volumes dealing with the Moon, entitled "Selenotopographical Fragments" (1791 and 1802). In these Schroeter offered detailed descriptions of lunar landscapes but mislead by his imperfect instruments (various reflectors up to 18½-inch apertures) he also presented supposed evidence pointing toward a lunar atmosphere of sufficient density to support some life. He was seriously searching for evidence of lunar life, even of "selenites", intelligent inhabitants of our Moon. Gruithuisen, strongly influenced by Schroeter's writings, continued this search for lunar life. He rejected the work of Tobias Mayer (1748) and Roger Boscovich (1753) which had presented excellent evidence that the Moon's atmosphere was, for all practical purposes, non-existent, preferring to believe Schroeter's observations instead.

Gruithuisen's education was somewhat checkered: born in 1774 (the son of the falconer of the Duke of Bavaria), he joined the Austrian army at the age of 14, learning first aid and field surgery. From 1801 to 1808 he attended the University of Landshut where he studied medicine, astronomy, mathematics, and natural history. In 1808 he was appointed Professor of Natural Sciences at the School of Veterinary Medicine in Munich, and in 1826 Professor of Astronomy at the University of Munich. He remained in Munich until his death in 1852. As inventor of a device to crush kidney stones he was honored by most European academies, including those of Paris, Budapest, and Moscow. Interested in nearly all aspects of natural sciences, Gruithuisen's fame among his contemporaries was considerable but proved to be all too ephemeral, so that his name now appears merely in footnotes in the histories of astronomy, medicine, and geology.

His lunar observations show that they were made with great care and indicate that Gruithuisen possessed keen eyesight (he used small Fraunhofer refractors). It was in the interpretation of his observations that he strayed far afield (for example, he observed numerous "domes" but thought them to be clouds since they disappeared shortly after the Sun had risen). In his first major article, "Selenognostic Fragments" (Bonn 1821, note the similarity to the title of Schroeter's book) he detailed his reasons for believing in the existence of selenites: certain areas on the lunar surface seem to darken as the altitude of the Sun increases - these must be due to lunar vegetation! Careful modern observations show this phenomenon to be due to contrast effects. Where there are clouds (his observation of "domes"), there must be water! The Moon's atmosphere is admittedly thin (he would argue) but so is the atmosphere on top of

terrestrial mountains where people do live - hence there must be intelligent beings on the Moon! Such supposed logic was used by Gruithuisen to formulate a detailed lunar botany and zoology. Having done that, he set out to discover concrete evidence pointing to the existence of his selenites.

On July 12, 1822, while observing the Moon with a two-inch refractor shortly after last quarter, he discovered what appeared to be a very regular structure near the center of the Moon's disc. A small crater (marked a in the adjacent drawing) seemed connected by two slightly divergent, straight ridges (about 35 miles long) with two mountain peaks (b and c in the drawing), the ridges running nearly south to north. A series of parallel ridges, oriented from the two mountains in south-east and south-west directions respectively, connect the main ridges and extend outward and away from these to some distance, the entire structure resembling a leaf. The entire thing was obviously artificial, and although one could only speculate about its function, it seemed to Gruithuisen reasonable that it would be analogous to our fortified cities!



Schwabe's drawing of the Moon "city". His observations will be discussed in the next issue.

Word of Gruithuisen's "discovery" of a city in the Moon spread quickly through the newspapers of the day arousing enormous interest - after all, it was made by a scientist of some reputation and its announcement had appeared in a scientific journal! However, astronomers immediately rose to challenge his interpretation and some openly ridiculed his "discovery".

Shortly after the article had appeared, Wilhelm Gotthelf Lohrmann (1796-1840) published the first installment of his "Topography of the Visible Surface of the Moon" (1824) containing the first four of 25 sections of a detailed map of the Moon together with careful descriptions of its surface features. On page 42 of this book appears a footnote: "In this region ... Mr. Gruithuisen believes he has seen a city, a fortress, and other artificial works. He hopes soon to recognize the lunar inhabitants themselves, should they parade en masse through their forest glades, and he tells much in his selenological writings of hot springs, minerals, animals and plants. But these famed discoveries and the elaborate theories based upon them have no place in a serious book on lunar topography."

Gruithuisen was deeply wounded by this attack. To save his reputation, he packed up his telescope and from June until September 1825 he toured central Europe to convince his fellow scientists of the reality of his city in the Moon. The list of scientists visited reads like a "Who's Who" (students of the Moon will recognize a few crater names): the astronomer Bohnenberger, physicist Oersted, botanist Eschweiler, anatomist Soemmering, geologist Noeggerath (who suggested to him that perhaps the ridges observed by him were merely natural basalt columns), mathematician Gauss, to name a few. In Weimar he dined with the aging poet Goethe, who asked Gruithuisen to demonstrate for the ladies present, how his selenites might perform a waltz in the Moon's environment of a greatly diminished surface gravity!

We do not know how many scientists Gruithuisen managed to convince as a result of this unusual journey. Some at least were able to see with their own eyes and the help of his telescope that such a structure existed on the Moon, because no other lunar observer had been able to confirm his observation. (DON'T MISS THE NEXT INSTALLMENT OF THIS BIZARRE TALE IN THE APRIL-MAY EDITION OF THE SPECTRUM.)

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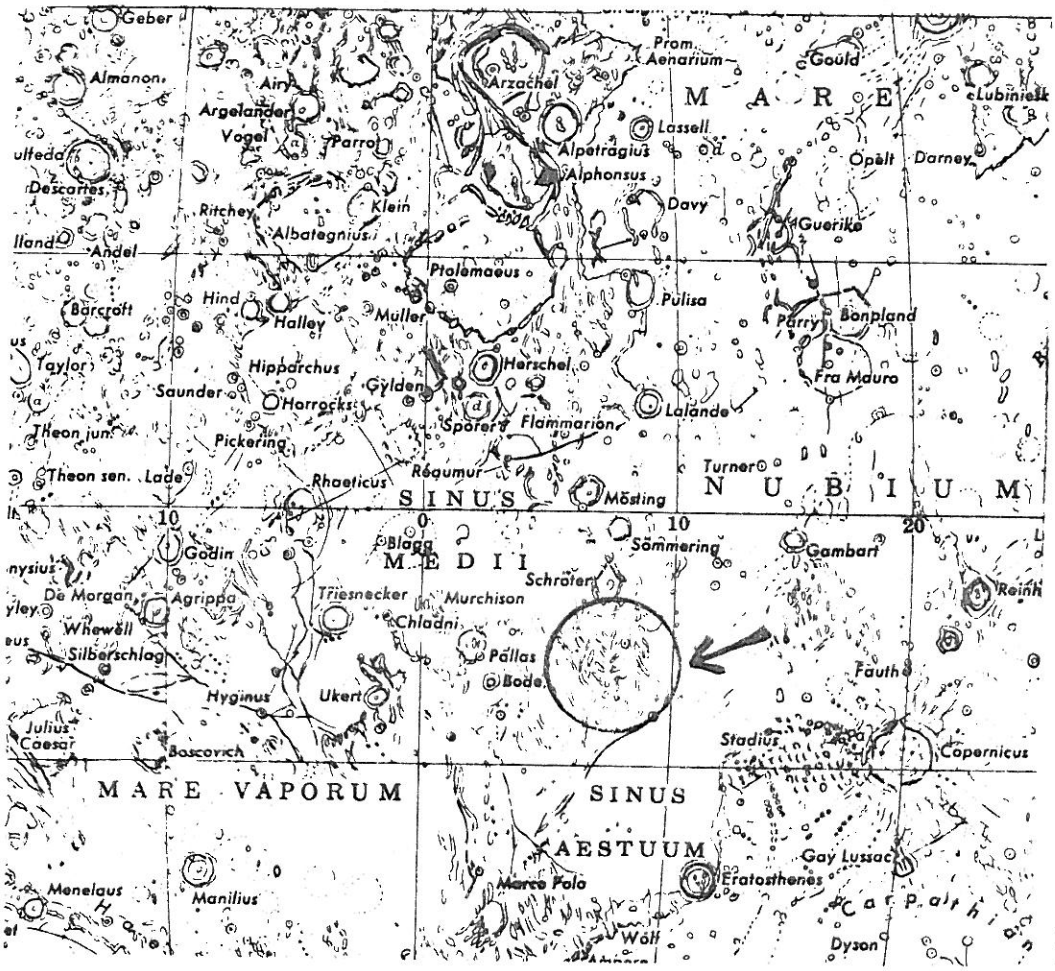
HOW TO FIND GRUITHUISEN'S MOON CITY: The "city" of Gruithuisen was discovered shortly after last quarter when the terminator ran through the west wall of Clavius and through Plato (west in the old selenographic sense: the Mare Crisium is on the west side, the crater Grimaldi is on the east side of the Moon. Modern maps have the directions reversed). Near first quarter it is visible at about the time when the terminator runs through Clavius, Eratosthenes, and Plato. Gruithuisen used a 2-inch refractor at 90 X. Low powers on small telescopes will show it well; the drawing on page 4 was made by Samuel Heinrich Schwabe (1789-1875) in 1826 with a slightly larger telescope. On the map below the circle with arrow indicates the area in which it is located. The drawing on page 4 covers slightly more than half this area. Members who are interested in astrophotography may want to get some really good pictures of it - a contest will be announced in the next issue of The Spectrum. Since the "city" is in reality composed of an intricate arrangement of fairly low hills, its appearance changes rapidly with increasing (or decreasing)solar altitude....



Those who might want to photograph it would do well to follow the terminator as the Sun rises on this structure, or as the Sun begins to set on it soon after last quarter.

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FOR SALE:
XXXXXXXXX 50 mm FINDER with mounting bracket, no crosshairs. N E W! Essential Optics, $ 14.00 CALL 884-3850 after 5:00 p.m.

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Tom Dessert extends his appreciation to all who helped him move his observatory and household goods to his new home. He could never have accomplished it without their fortitude and thoughtfulness. *******

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Our sincere thanks to Elaine Deazley for printing the address labels which will adorn your Spectrum from now on. THANKS!!!!

METEOR SHOWERS FOR FEBRUARY AND MARCH On February 9th the maximum of the AURIGIDS will produce about 12 per hour. The duration is ca. 5 days from a radiant at R.A. 05h 00m, decl. +41°. The Moon is near new phase and will not interfere. If you observe this shower I would be interested in your observations. In March there are three showers: on the 11th the ZETA BOOTIDS may produce a rate of 6-14/hour, not spectacular, but at least the Moon will not interfere. The CORONA AUSTRALIDS last for 4 days with a maximum on the 16th. These are short and fast, showing a display of about 5/hour. The near full moon will wash out any observations of the VIRGINIDS on the 26th. Their duration is 15 days but the rate is only 5/hour. Good Hunting! Darwin Christy.**********

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PUZZLE, BUT NOT ASTRONOMICAL (By Darwin Christy) In a hardware store you ask the price of an article which no household should be without (practically every harware store carries it. The following conversation ensues: Clerk: "The Price is a quarter each." Customer: "That means seventy five for 100." Clerk: "That is right." Customer: "Well, I will take fifty seven." Clerk: "That will be fifty cents." Now the conversation makes perfect sense. What is the ARTICLE? Watch for the answer next time, or send it in.

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MARCH MEETING: For our meeting on March 14, 1975 (8:00 p.m., Club Room, Buffalo Museum of Science) we are very happy to welcome back our long-time friend and supporter, Dr. Seville Chapman. Dr. Chapman is Director of Scientific Staff, New York State Assembly in Albany, N.Y. The topic of Dr. Chapman's lecture will be announced at a later date. Whatever the topic though, Dr. Chapman is a most interesting lecturer whose presentation you cannot afford to miss!! It is with great pleasure that we welcome DR. CHAPMAN!

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KEN BIGGIE appeared on Bowling for Dollars (Ch.2), and although the bowling was not phenomenal, he did remember his friends in the B.A.A. -- Thanks, Ken.**********

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