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

the Spectrum

Editor: Ernst E. Both

SETPEMBER - OCTOBER 1976

THE SEPTEMBER AND OCTOBER MEETINGS of the Buffalo Astronomical Association will be held at 8:00 p.m. in the Humboldt Room of the Buffalo Museum of Science. On September 10, 1976, Dr. Gunter Wessel will speak on "Jupiter." Dr. Martin Green is scheduled to talk on "Television Astronomy" at the October 8, 1976, meeting. Recent years have marked significant advances in both fields and I am confident that our membership will be pleased with these topics.

Formal presentations are not intended to be the only means of communication in our field. Brief talks from our members on topics related to astronomy are an important contribution to our association's objectives. During the course of our ten meetings throughout the year, we have the opportunity to hear ten or twenty ten-minute (more or less) presentations from members on astronomical observations, history, instrumentation, or current issues. It is a means whereby our membership can become better acquainted with the personalities and interests of fellow members. Those wishing to give a talk should contact President Fred Price at least a week in advance of the meeting so that he can arrange his schedule for the meeting. Rowland A. Rupp, Secretary (839-1842).

*

FROM THE PRESIDENT

I am very happy and proud to have again been elected President of the Buffalo Astronomical Association, this being my second time; the first was 1968-70. As you know, my predecessor, Mr. Darwin Christy, ran for two consecutive terms and saw us through the critical period of establishment of the 'special relationship' of the B.A.A. to the Buffalo Audubon Society. This culminated in the successful completion of our observatory at Beaver Meadow and the installation of the Association's twelve-inch reflector which was dedicated two or three months ago. Our debt to Darwin and all of the able people who accomplished these things is very great.

There are at least three things that will be of special concern to me during my tenure of office. The first is the attitude of older B.A.A. members to the younger members. One of our stated objectives is 'the encouragement of a popular interest in Astronomy'. As well as enjoying our adult groups at coffee time for 'adult talk', I think that us older members should also make an effort at each meeting to talk to at least one younger member - I am thinking especially of teen-agers - and ask about interests, and projects and to offer encouragement and help. Secondly, we should make guests and new members feel at home and part of the group. Attention to these matters could well make the difference between gaining new and potentially valuable members - or their deserting us in disappointment or even disgust. Thirdly, I hope that B.A.A. members will not forget that the Spectrum is THEIR newsletter and that articles written by members are, or should be, the backbone of the Spectrum. Anything from full length articles to short notes of personal observations, observing gadgets, projects, etc., from members, are welcomed by Ernst Both, who for some years has done and continues to do an excellent job of editing our newsletter. He deserves our praise and admiration.

Our monthly meetings are traditionally friendly and informal but we should not forget that prior to the main presentation, we have a business meeting. Apart from routine reports and announcements, this is the time when members can ask questions, express views or make suggestions regarding the B.A.A., its activities and the way it is run. With respect to the latter, concrete proposals are best put in the form as laid down in 'Roberts Rules of Order' i.e., as motions that have to be seconded by another member followed by discussion of the motion and finally the vote. If time does not permit or if more discussion is needed, a motion can be tabled for consideration at another meeting. I believe that we should observe some such rudimentary or minimal 'structure' in the business part of our meetings because although informality is fine, it might easily degenerate into sloppiness if all semblance of order at meetings is abandoned.

This summer, I visited the old Greenwich Observatory near London, now the National Maritime Museum. Some years ago, Ed and Olga Lindberg showed us slides of their visit there. In late 1971, the great 28-inch equatorial refractor was brought back from Hurstmonceux where it had been taken after World War II. The dome that housed it at Greenwich was bomb-damaged and was taken down and demolished. The great telescope is again housed at Greenwich in a replica of the famous 'onion' dome made of modern materials and is in full working order. I hope to obtain permission to photograph the instrument and I shall be showing my Greenwich slides during the first B.A.A. meeting in September.

To conclude - I look forward to the next two years as President and am indeed fortunate in having such a fine team to work with me - Ken Biggie (Vice President), Rowland Rupp (Secretary) and Tom Dessert (Treasurer). The B.A.A. membership may have every confidence in that we shall do our best to serve you and to be responsive to any ideas or proposals that you would like considered in the interest of improvements in the running of our Association and the programs and services that it offers.

F. W. Price, August 1976.

*

Guest Editorial: THE MUSEUM NEEDS HELP. By Kurt Erland

The Buffalo Society of Natural Sciences (BSNS), administrator of the Buffalo Museum of Science, has been in existence since 1861. The Museum itself opened its doors in 1929 (one year before the foundation of the Buffalo Astronomical Association). Since then the Museum and Society have provided countless services to the people of Western New York. Several basic facts are often poorly understood: All collections, exhibits, and scientific apparatus (for example, the Kellogg Observatory) are the property of the Society and are purchased with Society funds or donated to the Society. Were it not for the Society, the Museum would be an empty building. This building is the property of the City of Buffalo, and funds for the operation of the Museum, including salaries for its staff, supplies, utilities, etc., are derived from the County of Erie and the City of Buffalo. These operating funds (as opposed to Society funds) have been cut over the past year or so, resulting in fewer staff and reduced services. Because of fiscal problems which both County and City governments are facing, the operating funds may be totally withdrawn next January. At this time, the Museum is not represented in the County budget. The peculiar result is that while the Society is currently engaged in a massive renovation of all exhibit areas with Society funds, the Museum may be closed because of lack of operating funds, its staff disbanded, and all services discontinued.

In an effort to generate operating funds other than those provided from local taxes, the Society has recently instituted a new policy which would ultimately require all members of groups meeting at the Museum to be members of the Society (BSNS). This new policy has met with resistance from a number of groups, some of which have threatened to abandon the Museum. Such an attitude may be understandable, but it is,

in a sense myopic. There is no denying that the Museum has done much for these groups, just as there is no denying that these groups have done much for the Museum. This, however, is not the time to pull apart, but rather a time to pull together. Membership in the Society ($ 15. for an individual, $ 20. for a family, and up) is not so exorbitant that many people could not afford it. For some, to be sure, such membership is prohibitive. It is therefore urged of our members that those who can afford to join the Society, do so (membership fees are tax-deductible). Meanwhile attempts are being made to reach a compromise and our own Tom Dessert has been hard at work in this direction. The Society has agreed to postpone implementation of this new policy for six months. The B.A.A. Board has resolved, for the time being, not to require its members to be BSNS members, pending the achievements of a compromise.

One fact is certain: the Museum is in difficult straits and it needs all the support it can get. Western New York can ill afford to be without the Museum. Your help is needed and will be appreciated. If you cannot afford to join the BSNS, urge a friend who can. Every new membership demonstrates faith in the Museum's future, is a vote for its existence, and is an expression of gratitude for its fine services in the past. PLEASE HELP!

*

* * MARS: THEN * * By a member, B.A.A.

Man has always been fascinated by the planet Mars. For centuries, astronomers and peasants, philosophers and priests have pondered the question, "Does life exist on Mars?" Right now, Viking I and Viking II are investigating the Martian surface and exploring the possibility of life, past or present, there. What will Viking find? Would the astronomers of another era be surprised?

One astronomer, Richard Anthony Proctor (1), prolific author of popular astronomy books - the Patrick Moore of the latter 1800's - expected to find life of some sort on Mars because "... the planet Mars ... exhibits in the clearest manner the traces of adaptation to the wants of living beings such as we are acquainted with. Processes are at work out yonder in space which appear utterly useless, a real want of Nature's energies unless, like their correlatives on earth, they subserve the wants of organized beings". Just what did Proctor know? He tells his readers in: "Mars, The Miniature of our Earth," Chapter IV of Other Worlds Than Ours, 1870.

One hundred years ago, astronomers had already found out quite a bit about Mars. They thought it similar to Earth. They had determined that the "Martial" globe was approximately 5,000 miles in diameter, giving it a surface area of about 2/5 that of the Earth, with a density of 3/4 that of Earth's. The Martian year was 687 Earth days and the Martian day was 24h 37m 22.735s (2) or roughly 40 minutes longer than an Earth day. The inclination of equator to orbital plane was 27½° and the orbit was very eccentric, the center being 13 million miles from the Sun. Like Earth, the axis of Mars was oriented such that summer in its northern hemisphere occurred when Mars was farthest from the Sun and thus receiving approximately 2/3 as much radiation as at perihelion. Hence, the contrast between summer and winter in the northern hemisphere was not very pronounced, while the opposite was true in the southern hemisphere.

Mars appeared telescopically as a reddish disk, somewhat darker and greenish in the central portion, with two bright white polar caps, and a pronounced white mist around the edges, which "rightly understood, is one of the most instructive features of the planet's aspect." As yet, no moons had been discovered. Many astronomers had observed and mapped Mars, among them the Rev. William Rutter Dawes (3), from whose

drawings Proctor made the following chart.

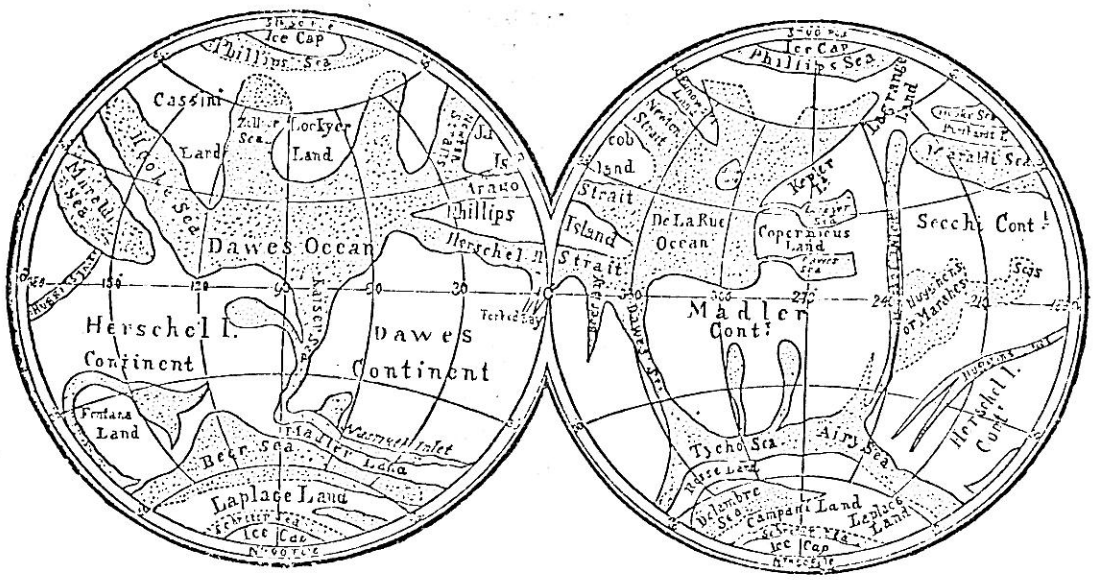


Fig. 22.—Chart of Mars, from 27 drawings by Mr. Dawes.

Why did these astronomers conclude that the ruddy portions of Mars were continents or islands and the darker somewhat greenish portions were water? Especially when it had already been established that the darker pertions of our Moon, called maria or seas, were not aqueous. Mars was different - on the Moon no natural processes seemed to occur; the lunar surface remained the same despite extreme contrasts in temperature. On Mars, however, "physical processes of change are taking place on a grand scale in that distant world." The manifestation of these upheavals was the "veil" drawn over a portion of the planet's face, "a faint, misty light, with ill-defined borders" which sometimes moved or lifted completely after a few hours or days or, if it was winter, nearly always remained for months at a time. By analogy to conditions on Earth - where fogs and mists, rain and snow occur more frequently in winter because the cold air cannot hold large quantities of water vapor and must precipitate it in some form - Proctor concluded that the seasonal variations in the Martian clouds are evidence of fluid vaporization. Perhaps a non-aqueous fluid? No, spectroscopic studies made by Sir William Huggins (4) at the opposition of Mars in 1867 established the presence of aqueous vapor in the Martian atmosphere. And so, accepting the fact that the vaporous clouds covering the Martian surface are aqueous, "we must believe in the existence of oceans there and, considering our own seas, we must recognize that the greenish parts of Mars are oceans and that the reddish parts are continents".

Thus, there are land masses and oceans on Mars which, Proctor tells his readers, must have been caused by forces of upheaval and depression - volcanic eruptions and earth-quakes - which have left behind mountains and valleys. Proctor continues to describe for his readers his observations and conclusions. There are clouds there which provide shelter from the Sun's heat by day and prevent escape of the planet's heat by night and, just as Nature arranges and modifies temperatures on Earth by vaporization and condensation, so she does on Mars, strictly in accordance with natural laws, yet justifiably recognizable as "evidence of the beneficence of the Almighty." These same clouds, in addition to being dissipated by precipitation in the form of rain or snow like our terrestrial clouds "and who can doubt that they (the Martian lands) are thus nourished for the same purpose as our own fields and forests - namely that vegetation of all sorts may grow abundantly?" In fact, there is so much rain, judging by the clouds, that there have to be rivers. The waxing and waning of the polar caps, which are snow, is evidence of the existence of oceanic currents and

there are the winds which move the climate-tempering clouds and by which the "air is cleaned and purified, its thermal and electrical conditions are regulated ... and, in fine, the atmosphere is rendered fit for all those purposes for which, like our own, it has doubtless been created."

"Guided onward by no speculative fancies, but simply by sober reasoning," Proctor not only finds on Mars all the natural phenomena found on Earth which make it hospitable to man but also, as wonderful, "all the various kinds of scenery which make our earth so beautiful ..." And everything would be wantonly wasted were there no forms of life there. He concludes that "surely, if it is rashly speculative to say of this charming planet that it is the abode of life - if we must, indeed, limit ourselves to the consideration of what has been absolutely seen - it is ... ten thousand times more rash ... to assert, in the face of so many probable arguments to the contrary, that Mars is a barren waste, either wholly untenanted by living creatures, or inhabited by beings belonging to the lowest orders of animated existence." NOW, let us all hope that Mr. Proctor would not be too disappointed with the Vikings' discoveries!

NOTES: (1) Richard Anthony Proctor (1837-88), English-born astronomer; Fellow of the Royal Astronomical Society; later an astronomy lecturer in America; founder of the American magazine "Knowledge"; author of fifty-seven books on astronomy. (2) "This estimate I have obtained by comparing pictures taken by Hooke in 1666, and by Dawes and Browning in 1866-1869 - with precautions sufficing to secure that no complete rotation should be lost sight of." (3) Rev. William Rutter Dawes (1799-1868), English-born physician who subsequently became a Nonconformist clergyman and astronomer; Fellow of the Royal Astronomical Society; an independent discoverer of Saturn's crepe ring in 1850; known for his extensive measurements of double stars and for his meticulous planetary observations, preparing exceptionally accurate drawings of Mars at its November 1864 opposition. (4) Sir William Huggins (1824-1910), English-born astronomer; first to apply spectroscopy successfully to astronomy (stellar astronomy) and publisher of the first catalogue of stars by spectral classification; innovative astronomical photographer; President of the Royal Astronomical Society (1900-06).

*

REGARDING THE SPECTRUM, by the Editor.

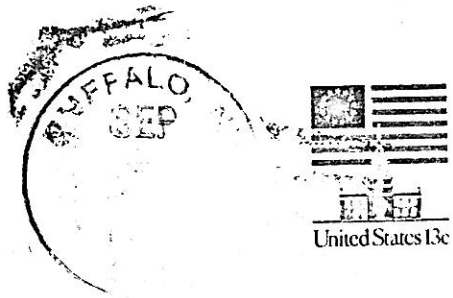
The preceding article is a fine and welcome contribution by an anonymous member - our thanks, although we wished that he or she had signed his or her name. The Spectrum is published bi-monthly and we actively seek contributions from our members. PLEASE if you have any contributions, don't let them sit in your head or (worse) in your desk. Also, if you have any comments, good or bad, pass them on to me. It is disconcerting to find member X critically reviewing contents of a given issue with member Y, complaining about this or that, without telling the editor, who would be more than happy to do something about said contents if he only knew what members think - otherwise his crystal ball is cloudy and a mind reader he is not! The Spectrum is always printed one week before the September, November, January, March, May, and July meeting. Thus contributions be they articles, news items, or whatever, must be in our hands (care of the Museum) on the Monday of the week preceding the meeting scheduled for the months enumerated. Since all articles, etc. are re-typed, they can be in the form of handwritten notes, scribbles, what-have-you. PLEASE CONTRIBUTE AND LET US KNOW WHAT YOU WANT. Thanks.

*

NEWS ITEMS: Tom Dessert's Astro-Photography class at Beaver Meadow (July 9 - August 13) was an excellent success. 22 students photographed everything from constellations to galaxies and attendance was very good. Tom has prepared a manuscript on astr-photog.

which we hope to publish in booklet form. * Our new membership chairman is Robert Hewitt who will be situated near the door at each meeting - any problems about membership please see Bob - - and welcome aboard, Bob! * The Bond Wheelwright Co., of Freeport, Maine, has just published a new book: RUSSEL W. PORTER, by Berton C. Willard, which sells for $ 12.50 (plus 60 ¢ for handling and mailing). * Porter was famous, among other things, for his "cutaway" drawings of the 200-inch. Artist Maxfield Parrish wrote about them: "If these drawings had been made ... after it had been erected they would have been of exceptional excellence, giving an uncanny sense of reality, with shadows accurately cast and well nigh perfect perspective: but to think that any artist had his pictorial imagination in such working order as to construct these pictures with no other material data than blue prints of plans and elevation of the various intricate forms - is simply beyond belief." * Construction (or rather destruction of existing walls, etc.) is well under way at the Museum. Because of this, the Kellogg Observatory will be closed until further notice. Also, it may be necessary on occasion to move our meetings into the auditorium or some other suitable (or not so suitable) place. Your patience and understanding will be greatly appreciated. * Ed Lindberg was heard recently on WBEN discussing Esperanto.* WE WELCOME AS NEW MEMBERS: Ms. Dorthea Duttweiler, Dr. Marilyn Fiegel, Rev. Robert Gilbraith, Ms. Connie Hendershot, Mr. & Mrs. Michael Jason Sr., Ms. Michelle Levaway, David Maul, John O'Dea, Michael Ortners, John Sojka (an "old" member returned), Mr. & Mrs. Clifford Stroke, Ronald J. Whyte, Art Wroblewski, Daniel J. Roach, Thomas Broad, Phil Cizdziel, Ernest Kiefer, Franz Kiefer, John Postle, Thomas E. Rider, Richard Schultz, and Mr. & Mrs. Frank Zajak. * Bob Burdick is reported to be building an observatory in his back yard. * Edith Geiger rejuvinated her observatory with a fresh coat of paint, while Carroll put a new floor in (? finished?). * Anyone visiting the Bighampton area be sure to see the public Kopernik Observatory, now headed by Robert Aguglia, formerly with the Museum's Kellogg Observatory. * REMINDER - DUES ARE DUE, SEE ROBERT HEWITT OR TOM DESSERT. *

Buffalo Astronomical Association
c/o Buffalo Museum of Science
Humboldt Park
Buffalo, N.Y. 14211



First Class

Mr. & Mrs. R. Rupp
132 Burroughs Dr.
Snyder, NY 14226