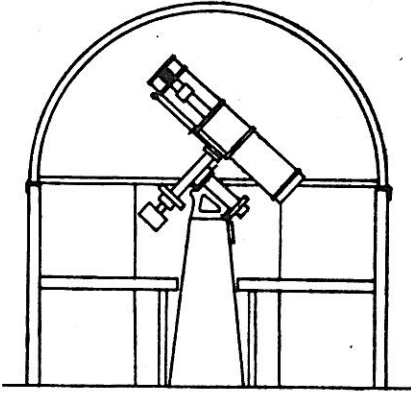


THE

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



SPECTRUM

A P R I L 1 9 6 9

Editor: Ernst E. Both

APRIL MEETING: For our meeting on April 11, 1969 (8:00 PM-EST at the Museum) we are privileged to welcome as our guest speaker Mr. John J. Ruiz of Erie, Pennsylvania. A retired electrical engineer, Mr. Ruiz has won nation-wide fame as a variable star observer, particularly in the field of photoelectric photometry of variable stars. He is a member of the American Astronomical Society and the American Association of Variable Star Observers. Mr. Ruiz has chosen as his lecture topic "The Mayan Calendar in Astronomy," a topic which, to my knowledge, has never been discussed before our association. There is abundant evidence that the ancient central American cultures possessed intriguing astronomical knowledge - so this is an excellent opportunity to find out more about this knowledge. It is our pleasure to welcome to Buffalo Mr. JOHN J. RUIZ!

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* CHANCES ARE * By Orrin D. Christy.

Listening to the evening weather forecast, we often hear the probability of precipitation for the next day. For a prediction of a 30% chance of rain, we would think, given 10 days with exactly the same conditions, chances are, it would rain on 3 of them. (But if you planned star nights on these ten days, it would rain all 10 days. Noah had this trouble once, when he planned a 40-day star party!). But the idea of chance is not only with us in meteorology, but a great many astronomical phenomena are explained because of their deviation from a normal chance event.

One of the best known fields in which chance plays such a role is that of visual binary systems. Take for example Castor, one of the bright first magnitude stars in the constellation of Gemini. In this binary we have two stars, one of which is the 50th brightest star in the sky, and the other of which is about the 400th brightest. Their average separation is about 5 seconds of arc. If we assume that the stars are distributed randomly across the sky, which would eliminate the possibility of having binary stars, chances are very slight that so bright a pair should exist with such a small separation. The probability would be the same as if we took 50 grains of corn and 400 grains of wheat, and spread them randomly over a 10 acre tract of land. The chances of finding a grain of corn within a half inch of a grain of wheat are the same as finding the two components of Castor so close together (it gets wilder if you consider the rest of the Castor-system! eeb). Numerically, this would be one

chance in 300,000. There is a 0.00003% chance of finding two bright stars so close together. No other comparable system should therefore exist in the sky. When other close bright pairs are found, such as Mizar, chances are that stars are not randomly distributed, but are often found in pairs or as multiple systems, the binary stars.

In the radio source Cygnus A, theory had it at one time that it may be a pair of galaxies colliding with one another. What is causing the tremendous output of radio energy (10^{38} watts) - stars in collision? Well, chances are that individual stars will not collide. The average distance between stars in a galaxy is immense. So stars in collision are probably not the cause of this energy. The collision of gas and dust of the interstellar space is most likely the cause of this.

One last example concerns the structure of a globular cluster. If you have ever looked at a picture of M-13 in Hercules, or of Omega Centauri, you have probably marveled at the beautiful symmetry, and how compact the stars are in the middle. Well, chances are, if you were to shoot bullets, randomly, at the center of the cluster, only one of every 100 billion would hit a star, unless of course you aimed at one intentionally (and even then, chances are ...). So they are not really packed that tightly. There are still great distances between stars, even in globular star clusters.

So, much of astronomy is explained by deviation from a probable event, or number of events. One last probability - chances are, it will be very cloudy tonight, especially if you were planning to observe.

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CHANCES ARE, YOU HAVE NEGLECTED YOUR DUES. PLEASE RECTIFY THIS NEGLECT. SEE EDITH.

* DEEP-SKY OBJECTS FOR APRIL * By John Riggs.

The galaxies of Leo, Virgo, and Coma dominate much of the spring skies and provide many interesting views. Starting in Leo, M-65, M-66, and NGC 3628 make a good place to begin observations, forming an excellent group of galaxies. M-65 appears as a rather bright elongated ellipse with a brighter nucleus; it is an interesting sight with a six-inch reflector at 32 X. M-66 is located in the same field of view as M-65 and looks like a large fuzzy glow with a granular nucleus. Possible dark markings were seen with a power of 32. Although fainter than its neighbors, NGC 3628 appears as a long hazy streak with a possible dark band. These three galaxies are relatively easy to find, being only about one degree east of 73 Leonis.

Another good object as you move farther east is M-98 in Coma. It is located less than one degree away from 6 Comae Berenices and should be readily visible in the same low-powered field as the star. This galaxy appears as a long bright fuzzy streak with a ball-like nucleus. An interesting contrast between the more or less round shape that the majority of galaxies tend to show. Try to avoid the central region of the "Realm of Galaxies" until you have obtained more skill in finding deep-sky objects because the numerous groupings will only confuse. Thus, instead of plunging directly into the thick of it, I first started from eta Virginis and worked westward, following along the various galaxies until I reached M-88 or M-87. From either of these two objects you can work along the chain of galaxies between them.

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* NEWSTEAD OBSERVATORY AND THE MUSEUM * By Kurt Erland.

As my fellow BAA members know, there has been some discussion recently of moving Newstead Observatory, for a variety of reasons, such as: 1. The uncertain future of Cornell Aeronautical Laboratory; 2. The marginal use to which Newstead Observatory is put at present; 3. The CAL security arrangements at its present location which are not conducive to easy accessibility; 4. Sky conditions at Newstead are not really what they should be; 5. The entire facility is still not in a-1 operating condition (one may argue, of course, that much of this was known or should have been known before CAL made the generous offer to build the observatory structure - but then, hindsight, as is well-known, is cheaper than foresight). When the Buffalo Museum of Sciences (or rather, the Buffalo Society of Natural Sciences) purchased a sizeable piece of property about 10 miles east of East Aurora, N.Y., the late director, Mr. Fred T. Hall began planning a nature study center to be built there. This was to include some sort of observatory, mainly for educational purposes. At the time it seemed quite natural that a cooperative venture between the BSNS and the BAA should be considered. The BAA Board of Directors (as I understand the situation) considered the donation of Newstead Observatory to the BSNS with some contractual arrangement assuring the BAA the continued and unrestricted use of the facility. Mr. Hall was enthusiastically receptive to this idea and he instructed some of his art staff to draw up plans for the nature study center to be presented to the BSNS's planning committee. In the meantime, regrettably, Mr. Hall passed away, and it was not at all clear how far the BSNS Board of Managers had proceeded, if at all, with considering this project. The details are somewhat unimportant (especially since they are not known), suffice it to say that the BSNS Board of Managers at its January meeting (I presume) rejected the entire idea of a nature study center, indeed there are indications that it would just as soon sell the purchased land.

As I understand the situation, one of the reasons given was "lack of funds." While I sympathize with the situation, I am at the same time convinced that this phrase has become a very convenient one to use - I have always maintained that if one wants to be big, one has to make the effort of at least dreaming big. Dream small and you will remain small. It seems to me (and I have known the Museum for quite a long time) that this Museum has never really made the effort to attract the kind of funds other museums manage to attract (for example, Rochester, Cleveland). For example, there are state and federal funds available for training purposes, or other museums seem to come up with periodic fund-raising campaigns which manage to be successful, or other museums seem to attract substantial support from local industries, or wealthy private interests, etc. To be sure, there are groups within the BSNS, like the Women's Committee, which are active and quite successful. But often it appears that there are forces at work which are diametrically opposed - or the left hand doesn't know what the right hand is doing, and if it did, it would be opposed anyway.

I do not wish to appear overly critical with the way the Museum operates - but as a member of the BSNS it pains me to see a place with all the potential that this Museum has to merely stagnate or to merely "hang on" while others advance. After all, a post-mid-20th century museum is more than a stuffy place where one more or less exhibits. It is a place vitally concerned with the intellectual well-fare of the community it serves and particularly with its youth. It innovates, rather than imitates, shows daring rather than timidity, leads rather than follows. It collects, studies, interprets, exhibits - and when it does exhibit, it does so in an exciting manner, a manner which arouses a deeper interest in its audience.

It seems to me that the BSNS Board, in refusing to even explore the idea of

a nature study center and its significance to the future growth of the Museum (and I am not even concerned with Newstead Observatory now, for any observatory out there would have been merely a small part of a whole) has really shown a lack of appreciation of a modern museum concept. I personally regret its action because it casts a tall shadow on the future of the Museum's educational potential.

EDITORIAL NOTE: We have taken the liberty of changing Mr. Erland's editorial "we" to the first person "I" to indicate that this is his personal view of the situation. Perhaps he over-dramatizes the conditions. At any rate, we open our pages freely to anyone and any subject connected with astronomy and/or our association. But we wish to stress that Mr. Erland's opinions are his own personal ones and do not necessarily correspond to either the opinions of the BAA's Board of Directors, nor that of the Spectrum's editor, nor that of the majority of the BAA members. We would, however, like to hear from members how they view life, etc. eeb.

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* MAGNIFICENT AURORA, March 23, 1969: (all times EST) At 9:30 pm strongly developed corona somewhat south of zenith, extending to 60° altitude south, covering most of Leo except Regulus. Some red rays in west toward crescent Moon, very bright diffused red glow down to altitude 45° in west-NW. In the north a bright homogeneous band about 20° wide, about 20° above horizon, lower portion sharply defined, diffuse above, stretching in azimuth from about 320° to about 45° , there curving under. From this band distinct arcs stretch toward corona. Occasional streamers pulsating down from zenith in the east, occasional moving curtains from zenith toward azimuth 25° above homogeneous band. Maximum between 9:?? and 10:00 pm. Thank you Edith Geiger. Above as observed from 1 mile south of Langford, N.Y. Lasted until 11:00 pm. eeb.

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