NAAPO (North American AstroPhysical Observatory)

"Signals"
(formerly "NAAPO News")
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The NAAPO Newsletter
(May 31, 1988)

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Editor's Notes

With this issue, Phil has passed the reigns of producing this newsletter into my hands. As we continue to find more volunteers it is good to be able to distribute the work load. Phil has done a tremendous amount of work for NAAPO, and we all thank him. As a volunteer, I will concentrate on this newsletter (and various publicity and fund raising activities that are being organized).

I will need everyone's help to make this newsletter a success. If you have comments, criticisms, or suggestions for material please let me know. Drop us a note once and a while so that we can keep everyone informed of your activities. Those of you with accounts on the DEC20 at OSU can also leave messages and material for the newsletter through the RADOBS bulletin board (Ayotte-J).

Coordinator's Corner

Tom Van Horne was right! There are a lot of people out there just waiting for the opportunity to take part in a great adventure. He put his money (actually his time, talents and effort) where his mouth is and scratched the woodwork. What he came up with was a bunch of eager volunteers with skills and ideas that fit right in with the problems at hand at the radio observatory.

The outcome of Tom's experiment in local flyer PR was an overflow crowd at last week's working session and the sudden flowering of real, live working groups getting things done this week. We are already (this is 5 days after the working session) receiving word of problems solved, individuals digging into problems and the scurrying about of the old timers on the project to handle the sudden influx of personnel and the administrative sorts of things that must be done to make the program work.

I would like to commend everyone, new volunteers, old volunteers, Ron, Tom and very especially Bob Dixon who has taken on the monumental task of inserting the new people onto electronic mail and into the 11/23 system where appropriate. Bob has been appearing everywhere at all hours just to get the operation running smoothly. In fact he has operated so quickly that he even misses the opportunity to get new volunteers names the first time he meets them.

Keep up the good work, everyone. Now, let's keep these new characters busy.

Till next issue ... Phil

Working Session Notes

May 21st, 1988

Present: Barnhart-P, Barnhart-L, Dixon-R, Bolinger-R, Huck-R, Mitchell-W, Van Horne-T, Ayotte-J, Eggars-A, Topping-B, Ellingson-S, Miller-S, Koch-R, Nugen-J, Althouse-R, Crawford-S

Announcements:
1. A delegation from St. Vincent's is coming to the next working session. We may be keeping one or two students for a month or two as interns.

2. Gordon Macintosh (St. Vincent) is submitting a proposal to the Research Corporation for funds to interface their operation with ours.

3. C. Engle has offered a possible solution to our phone line problem for installing a PC with a modem in the focus room.

4. Ron Koch is attempting to organize an OSU student organization that might generate some additional volunteer support for the observatory. Walt Mitchell will probably serve as the faculty advisor for the group, which should be organized by June 10.

5. The Astronomy Club of Akron has started a column on "Backyard Radio Astronomy".

Brief Status Reports:
1. Radio Camera ... the results of Jim Bolinger's Radio Camera project are very promising. Efforts will be made to get the results published soon. Jim is hard at work on his thesis now. The exciting possibilities of a Mark II and Mark III version are already being discussed.

2. Site ... a) Ron Huck will be following up on the possible sources for the micro switches needed to get the antenna moving again. b) Lloyd Barnhart will take care of the repairs to the vacuum hose fittings. c) Phil Barnhart will take care of the

battery purchases from Sears while the sale is on.

3. Dreese ... Tape drives are needed for the 11/44 and someone needs to hook up a modem to it.

New Business:
1. Steve Ellingson will work with Jim Bolinger on testing of the Disc-Cone Antenna.

2. A program to do some new photography and have materials available for fund raising and public relations efforts is now under way.

3. Robert Teska responded to Bob Dixon's input on the zoning issues in Liberty Township that might have an impact on the Observatory with a brief thank you. At the Liberty Township Comprehensive Planning Program meeting, Mr Teska recommended that development in the vicinity of the telescope not be allowed to take any direction that would cause us difficulty. Thanks are due to Bob, and Mr. Teska for their efforts on behalf of the observatory.

Next Meeting: June 4th, 1988 at the telescope site.

March 21st 1988

Dr. Nicholas T Bobrovnikoff, Professor Emeritus in Astronomy at OSU died in California at the age of 91. Dr. Bob was an early director of Perkins Observatory, and well liked by his students and colleagues at OSU.

Arecibo News

The Arecibo Observatory/NAIC has begun to publish their newsletter once again after a two and one-half year absence. If you are interested in this publication, the editor is Melodie Salzer, and the address is:

National Astronomy and Ionosphere Center
PO Box 995
Arecibo, P.R. 00613.

This issue (March 88) updates the funding situation (not good), describes some of the funding proposals out for consideration, looks at the problem of responding to

requests for observing time, announces a very limited program for absentee observing (proposers should address a brief justification (one page or less) with a request to the Director of the Observatory), provides background on the feeds in current use at the observatory, describes the "mini gregorian" project, and provides several technical updates of interest to anyone who might be involved in or considering a project using the telescope.

Chronicle Gets into SETI Speculation

The January 13 issue of the **Chronicle of Higher Education** carried an editorial seeming to strip "natural" scientists of the social creativity presumably possessed only by the social scientists. I do not happen to subscribe to this view of us 'hard scientists', but I am willing to replay the ***Chronicle*** editorial for your entertainment and comment. (Phil Barnhart)

Opinion

Social Scientists, Too should be Involved in Efforts to Make Contact with Extraterrestrial Civilizations

By John C. Baird

The single most important event in the history of the human race may occur at the instant we establish indisputable contact with extraterrestrial intelligence. From our current position the detailed impact of such a singular occasion can only be dimly appreciated, though it is almost certain that life on this planet will undergo significant and lasting changes as a result.

Behind the scientific quest to intercept messages from outer space is a long heritage of scientific theory and experimentation. The methods of physical science are so imbued in public consciousness that they seldom undergo the revision characteristic of a dynamic set of ideas under continual scrutiny by outside critics. It is simply taken for granted that the "laws of nature" hold fast throughout the whole fabric of the universe; that use of the electromagnetic medium, including radio waves, is the most efficient way to communicate over great distances; that the coded message we receive someday will bear a close resemblance to mathematical or physical principles; and that, consequently, computers and telescopes working together provide the best means for detecting signals from extraterrestrial sources.

On the other hand, it would not surprise me if every one of these assumptions fell wide of the mark or turned out to be just plain wrong. While being perfectly applicable to human communication, they fail badly when applied to non-human communication. We must remember that the eventual goal is to understand an alien mentality, whose motivation for sending messages, for choosing a method of transport and message content, may well involve ways of thinking that are totally foreign to human beings.

In short, the usual strategies of physical science may be inappropriate for this problem. The remarkable success of modern technology results from its ability to move matter around at will; that is, large-scale engineering feats are the tangible outcomes of the logical thinking endemic to the scientific method. The physicist and philosopher of science John R. Platt has called this logical style of reasoning the method of "strong inference." He considers it to be the keystone of scientific breakthroughs in physics, chemistry, and biology.

The crux of the inductive strategy is straightforward. Once a phenomena is identified, a number of alternative hypotheses are formulated to explain it. By conducting a series of experiments, researchers eliminate all but one hypothesis; by strong inference, the surviving alternative is henceforth held to be correct. So from an initial multiplicity of plausible explanations, we move quickly and confidently toward a single choice.

This is the style of thought fueling the current plans to lift people and machines into semipermanent homes in outer space, as well as standing behind the techniques suggested to contact extraterrestrial intelligence from stations on Earth. Not all scientists unswervingly embrace the doctrine of strong inference, but it dominates the philosophical underpinnings of the space effort. Although seldom made explicit, the plan for the immediate future apparently is to conduct physical, chemical, and biological experiments, as funds permit, to test out notions about the nature of outer space and its potential inhabitants, and then to exploit those approaches that strike the richest lode. If there are unequivocal answers to questions about alien intelligence, this method is designed to find them.

Social science, on the other hand, generally operates with a complex network of explanations about any given phenomenon. Social science's experience with Platt's principle of strong inference is often disappointing. When dealing with problems of

human learning, perception, cognition, and social behavior, one almost never ends up with a clear winner from among the pool of candidate explanations. To some degree this may be because the experiments in social science cannot be run with the rigor possible in the physics laboratory. I doubt, however, if this is the whole story. Either the alternative viewpoints stubbornly hold their ground in the face of new data, or else, as old ideas fade, new ones spring forth to take their place. Thus the number of alternative theories at any point in a research program stays pretty much constant.

A likely outcome of a long investigation is that the remarkable flexibility of the human being is reaffirmed, a flexibility which demands that the theorist consider diverse opinions about how people approach everything from mathematics to child rearing, from ice fishing to bank accounts. There appear to be no absolute answers to many questions posed by social science. At least, such answers cannot be obtained with the methods presently available.

The theoretical psychologist develops conceptual models to elucidate various sides of human behavior, but in the cold reality of empirical facts none of these models can effectively sink its competitors. Different concepts are appropriate for different social situations, and so far, the method of strong inference has not led to a single broad theory of the human being that can account for behavior in even the most ordinary circumstances. It is in part because of this failure that social scientists are encouraged to think divergently and to retain an openness about opposing views, be they concerned with social, psychological, or physical matters.

Since I believe that the human mind creates the deeper melody to which the lyrics of natural science must be arranged, a variety of routes, including those of social science, must be pursued in treating the altogether novel issues arising in attempts to contact alien civilizations. At present, this is not the favored strategy of the scientists, administrators, and politicians most responsible for the world's major space programs. As far as I can tell, social scientists are rarely consulted in the planning stages of these programs, and consequently, the divergent thinking characteristic of their discipline is given less weight in making decisions than are the convergent methods familiar to the physical and biological sciences.

The result in practical terms is that only a small number of approaches are being explored, or even contemplated; and attempts by outsiders, social scientists and

others, to extend the breadth of the study are either ignored or met with frank disdain.

In the opinion of some philosophers, the past achievements of science in explaining selected aspects of the material world have gone to its head. Many people now have the unfortunate notion that physical science furnishes the conceptual tools to overcome every sort of obstacle encountered by the human race.

I would very much like to see this trend moderated and redirected into a more balanced view about the conditions under which physical science is and is not applicable. Those aspects of existence about which we know nothing, including the higher functions of the human brain and the universal limits of intelligence, may in the long run prove to be totally opaque to methods found effective in dealing with the inanimate and the biochemistry of life.

John C. Baird is a professor of psychology, mathematics, and social science at Dartmouth College. He was a member of a group organized by the National Aeronautics and Space Administration to design a detection system for signals that might be embedded in radio waves from outer space. This article is excerpted from ***The Inner Limits of Outer Space****, just published by University Press of New England.*

Letters

NAAPO Name Change

After reading the last NAAPO News, I was pleased to learn that most things are going well with the group. One item in the newsletter, however, left me with a frown on my face. The note I refer to is that of changing NAAPO to NASTAR or any other name.

To be honest, I am very much opposed to such a change. Under normal circumstances an organization will change its name only after radical organizational changes (such as merging with another group) have been implemented. No such merger has taken place, nor has any major management restructuring (another normal reason for a name change). Simply changing a well-known and highly respected name just because someone in the group gets a whim is definitely unacceptable.

I will offer a pat on the back to whomever brought up the idea of a logo for NAAPO. As far as I know, there has never been one before, and this type of change (as opposed to the name change) is both justifiable and probably worthwhile. As a compromise, why not use NAAPO with the new logo?

With concern for NAAPO,
Dave Fisher

The idea of changing the NAAPO acronym was much more than a whim. It was based on some real concerns of those of us who are trying to put together a serious fund raising effort. You'll be relieved to know, however, that due to the complexity of the situation it has been decided that NAAPO will remain unchanged in the forseeable future.

JA

Hay River Radio Observatory

Thank you for those kind words in the April 29 issue of NAAPO News.

The situation is in reality just as grim as you state, however the conditions are not exactly as reported. The main problem continues to be a total lack of research funding to cover even basics such as utilities and rent at the antenna site. I am now two full years in arrears with my heretofore patient landlord. In a meeting with him last week it was offered that, if I can come up with the back rent, and start paying my rent on a regular basis, HRRO may continue its SETI program here. About $8K US is required to put HRRO back in the black, (actually the closest I ever remember HRRO to being in the black is during the winter here when the sun disappears for six months at a time!).

I am currently awaiting response to two important proposals which if either proves successful, will allow me to continue my SETI research in Canada. If not, I shall be forced to sell all of my equipment. At that point I shall be a free agent and in a real position to accept offers such as Kraus' of last year. I don't think any of you realize even now that the burden of my equipment and operation here completely, and in every sense prevented any unassisted possibility of a move to Ohio last year! On a related note, I'm glad you were able to award the Skip Lewis Scholarship to a local

student of promise.

In response to your published "Wish List", I enclose information about a 5-stage, cascaded, high power, peltier cell cryogenic refrigerator which I was once building, and which now sits almost completed. All of the parts are there with the exception of the Edwards, single stage, rotary high vacuum backing pump which I choose to keep. This system could be ideal for Big Ear's two GaAs FET first amplifiers in a common cooled dewar. Once completed it should be capable of maintaining about 130 Kelvins at the 8 inch diameter cold plate. I've got $800 Can. tied up in it. I'll take about $500 US or offers? Shipping is the responsibility of the purchaser. It would fit in the trunk of a large car or better yet, in one of those newfangled mini pickup trucks.

Did you hear the great news about your Congress funding the NASA SETI effort? As I watch my own country fall completely to sleep it's nice to see that at least someone is cooking!

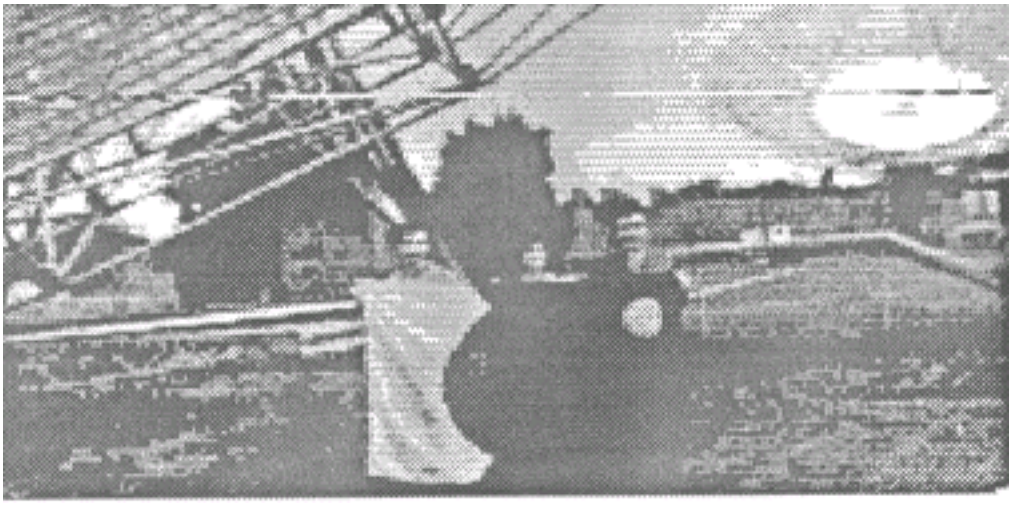
Please pass this information on to all my friends at Big Ear. I'll let you know what is happening for sure here just as soon as I know. It should not be long. In case you can find a philanthropist to purchase my stuff for your own advantage I also enclose a recent photographic tour of HRRO equipment. A complete inventory listing is available on request.

Best Regards,
Robert W. Stevens
Director

We all hope that Bob can find the funding he needs to stay in operation. If anyone is interested in the details of the cryogenic refrigerator, or would like to see the photos of the Hay River equipment, let me know. They just won't fit in the newsletter.

JA

Argentina



G.A. Lemarchand, M.A. Martin, 8 F.R.Colomb

Thank you very much for asking Mr. Malcolm Jones to send us the Flag of the Earth, it is now hanging in our Observatory where a SETI project is being developed. I've enclosed some photographs of our Observatory and SETI group.

Yours Sincerely
Guillermo A. Lemarchand

More on NAAPO name

Unfortunately, I have no suggestions to offer to you concerning a new acronym. The current proposed logo, printed on the final page of the latest NAAPO News is very handsome. It reminds me of the several days that Mark Johnston and I spent sweating and spray-painting and tallying the holes in the aluminum ground plane. Boy, those were the days! I like to think we got a radio tan. No, just kidding, it's a nice emblem.

Sincerely,
Mark L. Eickhoff

Mark is currently in Boulder, CO and could use any assistance anyone might provide in locating an advisor for his PhD work. He would bring very high qualifications to someone's research group. If you have any suggestions, we'll be glad to forward them on to Mark.

JA

Skip Lewis

Sorry I did not get to the work detail the other Saturday. We had a very bad ice storm here in Muskingum county and I had trees down in the yard and hundreds snapped at the farm. Power was out for some people almost four days. It was a mess. I had literally hundreds of young 20 year old pines snapped in half like match sticks ... awful mess and loss when you consider the time spent in caring for these trees to get them 30-40 feet tall and then broken in half by a storm.

I gave that 60 inch mirror away. Seems that one of the people that I wrote about trying to give the mirror away put my letter into a newspaper for amateur telescope makers and I had calls from all over the country for almost three weeks. Some group from Kansas came and took it. They were the first to get the paper and drove all night to make sure someone else did not get their hands on it.

Skip

Phil tells me that around a year ago we tried to give away Skip's 60" mirror through NAAPO News without any luck. (The announcement that got results appeared in the Spring 88 issue of ***Telescope Making****, a quarterly published by AstroMedia, the people who do* ***Astronomy*** *magazine. I remember reading about the mirror there, but that was before Tom Van Horne introduced me to NAAPO. I was surprised to learn of the connection.*

Final Frontier

In the June 88 issue of the magazine **Final Frontier** the OSU SETI project gets an extremely brief mention in an article by Linda Billings. The article is titled "Is Anybody Listening?", and it gives an interesting, if non-technical run down of the efforts to get the NASA SETI program going. When talking about the planned disposition of the six multichannel spectrum analyzers currently planned, she says, "The sixth analyzer will be at a dedicated SETI site, perhaps Canada's Algonquin Observatory or at Ohio State University."

The article is very upbeat and positive, and you should look it up. The magazine is a well done popular promotion of space exploration, now in its second issue. The upsurge of popular interest in space related topics is encouraging when government support is not forthcoming. The appearance of magazines like this support Tom Van

Horne's feeling that we can establish some personal and corporate financial support. All we need to do is present a serious and professional image to the right people. Now is the time to capitalize on the interest in SETI programs.

Last Words

I'm running out of space, and there is much more that I could put in this newsletter. Some of it will just have to wait. I hope we can work out cost effective ways of increasing the number of pages in the newsletter in the future, but for now my goal is timely turnaround. Our target is to publish one newsletter immediately after each working session at the observatory (currently scheduled for the first and third Saturdays of each month). I'll be getting everything but the meeting notes ready before the meeting and will plug them in at the last minute. That is how it is going to work in theory anyway. We'll see what the reality turns out to be.

Till next issue,
[John Ayotte - Signature deleted]

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