



## NAAPO (North American AstroPhysical Observatory)

"Signals"  
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The NAAPO Newsletter  
(July 16, 1990)



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## **NAAPO IN DEEP \$\$\$ CRUNCH**

**--- PEB**

NAAPO has always been on the edge as far as operating funds are concerned. There have been ups and downs and until recently we have managed to hold on to a few kilobucks to carry us over emergencies and get some necessary parts and services. By and large we have managed pretty well. It has never been free and easy, but we have managed to shepherd the dollars pretty well.

When the NASA team came to town we had an all-out effort on every front to get things working — the grounds people from OSU pitched in with weed control and drainage tile clearing, the volunteers fixed up and dressed up many areas, the Jones Middle School team painted inside the office building. Sweat equity paid off handsomely. Our NAAPO account dropped to about \$2200.

Then! A strange negative recommendation was made by the team contracted by NASA to evaluate the sites for consideration for the targeted SETI installation. After submitting a report comparing three sites in which BIG EAR figured prominently at the head of the list on many fronts, the conclusion by the survey team was to recommend against BIG EAR. Bob Dixon, Steve Brown and Steve Janis quickly responded to obvious errors in the report and Bob quite correctly went out on the limb to offer engineering studies by OSU to demonstrate the gross over-estimate of the review team. Such an engineering study would occur if NASA can assure us the decision has not already been taken and that BIG EAR is still in the running. To this end we agreed to commit \$1500 to \$2000 of NAAPO funds to help defray the cost of the engineering study.

Shortly after this commitment was made, a serious trash disposal crisis struck, leaving us in the position of possibly hiring professional solid waste disposal people to clear the observatory dump.

Since the NAAPO budget was near the bottom when the \$1500 commitment to engineering study was made we found ourselves placing a freeze on the remainder of the NAAPO funds. **WITH A BALANCE OF A LITTLE OVER \$2000 WE WERE IN JEOPARDY OF HAVING TO SPEND \$3000 TO \$3500.** Clearly we were in hot water.

The situation was in this grim state when a call came from John Kraus informing me he and John Young at ESL had decided to call in a string of dumpsters (to be filled serially) for volunteer labor to fill. NAAPO is marshalling a work session this week at which we hope to fill at least two dumpsters.

The pressure is thus off about \$300 of our funds which are sorely needed to restock the petty cash at Dreese that we find necessary to keep the every day repair and maintenance going. We are again practicing 'operation by the skin of our teeth.'

We call on all our volunteers to come out and help us clean up the dump. There have already been over twenty person-days devoted to this project. We estimate another 50 ought to finish up the job.

### **Have WE Got A Deal For YOU?**

Do you use electronics components, hardware or associated materials? NAAPO has a stock of parts we are offering to those interested in supporting our cause. The deal is we will provide selected components for a donation equal to 1/2 the catalog price for any of the material. I will use the current JAMECO catalog, or if you can find a catalog listing a lower price, I will use that price. We have moderately large quantities and will be glad to fill any needs you may have. A partial listing includes:

Digital IC's: 54LSxxx series

Stainless Steel hardware: (3-48, 5-40, 6- 8- 10-32)

IC sockets, Switches (110 V)

Transistors

Capacitors

5% 1/4 W resistors

LED's

Reversible Gear Motor

12 Volt Regulated power supply PLUS 12 Volt rechargeable battery (a \$300 deal for \$47 !!!)

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**CHECK YOUR WANT LISTS WITH**

**P. E. Barnhart, NAAPO**

**Dept of Physics/Astronomy**

Otterbein College  
Westerville, Ohio 43081  
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## **MEETING NOTES:**

*7 July 1990 ---EP*

The meeting started at roughly 10 am. Those in attendance were Barnhart, Moon, Childers, Dixon, Brown, Campanella, Phillips, Janis, Hanson, Backus, Bollinger, and Ferryman.

Dixon reports that Jill Tarter has sent him 2 letters; one regarding a Japanese film maker doing a movie on SETI and that she suggested that he contact us. The other letter was regarding her anger over the proposed budget cuts in the NASA budget, especially regarding SETI specifically. Dixon has also been recontacted by the CNN news people, stating that they have renewed their interest in a news story on us, and that they will be sending out another film crew next week to do further filming. They also plan to air the segment soon, and promise to let us know when it is expected to air. Dixon has also received an announcement from the Office of Naval Research regarding a proposal for the use of the VLSI, for sensor array signal processing.

Barnhart reports that the NAAPO fund is temporarily frozen due to the dump situation. It is possible that the funds will be needed to help pay for a crew to remove what's left. He has also delivered a PDP-11/23+ to the focus room from Otterbein. It was part of the Foster Grant. Barnhart also reports that he is planning a seminar at Otterbein for Clive Goodall. The intent is to discuss the merits of philosophy to SETI. We will be posting the date and time here in Signals and on the electronic bulletin board when these plans have been cemented.

Brown reports that the Marksman chart recorder has temporarily defeated his repair efforts, though he will be attacking it again when he has more time.

Childers reports that the resolution of the slide wire is roughly +/- .3 inches, and that the horn cart will move at a sidereal rate and stay locked on target with a +/- .37 inch variance.

Moon reports that he has done some research regarding the braking switches and

has found a better deal on them from a local supplier. He has also brought many supplier's catalogues for the various parts we need, at possibly better prices.

The meeting broke at roughly 11:40 am, with most going off to their respective tasks, some going to Dixon's to assist in the raising of an antenna mast.

## **PAYING FOR SETI**

The House of Representatives voted two weeks ago to kill all \$6.1 million in 1991 funding for NASA's SETI project. Compared to the billions spent on the Space Shuttle and Hubble telescope, the SETI funds are minuscule, supporters say, adding they hope the Senate will restore at least some SETI aid in next year's federal budget.

## **COORDINATOR'S CORNER**

This has been an eventful period. We have accomplished much in the past few months. Russ Childers and Steve Brown have managed mechanical and electrical innovations that put us well on our way to system automation. Tom Hanson is in the process of transferring huge quantities of Ohio Survey data from cards to mag tape. Numerous tasks, large and small, are falling under the able hands of our staff. Progress is evident on all sides.

Last working session (7 July) we moved the Foster 11/23 into the focus room. It will remain there until we achieve a number of critical priority items still hanging fire. The promise of additional disc capacity and a faster CPU makes it seem likely to enhance the operation of the SETI program. We look forward to the chance to get it up and running, if we have not produced too much damage in the rather rough and tumble moves over the past year.

There has been a groundhog population explosion at the observatory site. OSU grounds people have assayed the situation and there is indication they may have tried to do something. Filled burrows are re-excavated as fast as they are filled in. These are persistent little rodents. In early June I counted 18 on the driving range and office lawn at the same time. They are cute slob, but need to be dealt with in a direct and decisive way.

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This spring has seen the conclusion of one of the most bizarre events of our experience at the radio observatory. One year ago April, a group of NAAPO volunteers was apprehended at Otterbein attempting to carry off some computer equipment. Subsequent investigation revealed they had removed computers, software (all floppy discs with most of my back-up files) and a 20 Meg hard disc containing correspondence, class material, tests, data-base and desktop publishing software I had been using.

After long negotiations with the court system the final resolution came with a plea of guilty to one (of the original four felony charges) charge of breaking and entering. This forestalled a trial, but resulted in a sentence of probation (of a one year jail term) providing restitution in the sum of somewhat over \$9600 be made within three years. We have been unable to obtain any of the missing hardware and none of the IBM floppy discs. This has made some aspects of the communications task in my office more difficult. The irony is that they failed to get the files for which they were searching. If they had been patient for two more days, I was prepared to hand them the complete set for their records. As it now stands they still have not seen the files as we were holding them for possible evidence in the trial. I had developed most of the files on a third computer they did not have access to. The whole issue had arisen over an inappropriate overture to some of our youngest volunteers on a field trip to the radio observatory.

In over thirty years of dealing with student employees, lab assistants, test monitors, research associates and clerical assistants, I have never lost trust in any of them. Now, my attitudes and behavior are under severe stress. I continue to deal with students in a trusting capacity, but I have discovered that for the first time in 30 years I am locking my car doors! I like me just a little less because of this.

- - *peb*

## **CHIRON REDEFINED**

**--- EP**

Chiron, previously classified as one of the asteroids orbiting the sun between Mars and Jupiter, has now been proven to be a comet.

Chiron was discovered in 1977 in photos from the 48 inch Schmidt camera on Palomar, and classified as the eighth largest of the then known asteroids.

Subsequent observations in 1988 show that it suddenly doubled in brightness, as some comets are known to do.

Since then, a growing coma surrounding Chiron has been observed. This coma is expected to enlarge over time, since it is still roughly 12 A.U. from the sun. It will reach perihelion in 1996.

Chiron is reported to be 10 to 20 times the diameter of Halley's comet, with almost a million times the mass.

## **LDEF Recaptured**

**--- EP**

The Long Duration Exposure Facility, a scientific satellite shuttle, launched in April '84, was sent up originally for a one year study on the effects of exposure to space over longer periods of time than had been dealt with previously. The subsequent shuttle disaster delayed the return of LDEF due to the reshuffling of payload schedules by NASA. The shuttle Columbia recaptured the satellite on it's 50th orbit.

LDEF had many experiments on board, including seeds to be distributed to the nation's schoolchildren. The purpose of this experiment is to determine the effect, if any, that long term exposure to space has on the seeds. The kids will germinate and grow the seeds to determine if there has been any observable effects.

Shuttle personnel report that there is visual erosion of the skin on LDEF due to micrometeorites hitting the skin for such a long period of time.

Scientists involved in the study of LDEF will be making periodic reports on their findings as they are made.

## **NEW EVIDENCE FOR BROWN DWARFS?**

**--- EP**

Brown dwarfs, objects postulated by astronomers as stars which did not have the initial mass necessary to sustain long term nuclear fusion, may have been discovered photographically by a team of astronomers using a CCD array, photographic astrometry, and infrared speckle interferometry.

The region near the star designated as LKCa 4, in the Taurus star-forming region, is thought to contain 2 brown dwarfs. Brown dwarfs have been postulated to contain a significant fraction of the "missing mass" of the galaxy. There is currently much work being done in this area, in an attempt to either prove or disprove their existence.

### **Message from Jill Tarter**

On the following page [\[i.e., below\]](#) we reproduce an important message from Jill Tarter relating to a fantastically bizarre exchange on the floor of the U. S. House of Representatives.

We request all readers of SIGNALS to seriously consider writing letters to the indicated subcommittee members and your senators and representatives concerning this matter. It is a sorry state that finds government officials citing yellow and discredited journalism in support of elimination of funds to engage in scientific work.

From time to time we will include remarks of Rep. Machtley as they appear in the Congressional Record.

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2035 Landings Drive  
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July 2, 1990

DEAR FRIEND:

The summer solstice means many things to many people, but to me it means that the Congressional budget process is in full swing. Since I am writing to you at this time, you should have no trouble inferring that SETI is once again in trouble! Each year, it seems we chart new territory in how to run afoul of the system. This year, the budget mark by the House Appropriations Subcommittee on HUD and Independent Agencies specifically deleted \$6M from the administrations \$12.1 M request for SETI. This came from Mr. Malow (chief staff for the subcommittee), and was a bit of a surprise because we thought that we would run into difficulty only in the Senate where Kevin Kelly (chief staff of the Senate Appropriations Subcommittee) has been making loud noises about moving SETI to the NSF. We were in the process of trying to negate Mr. Malow's actions by talking to our friends on the Senate Appropriations Subcommittee when we were ambushed in the House by enemies we never knew we had! As you can see from the enclosed copy of the Congressional Record from Thursday June 28th, Rep. Machtley (R - RI) introduced an amendment to the Appropriations Bill, on the floor of the House, that zeroed the funding for SETI for FY91 and forever more, by implication. This amendment was immediately seconded by Rep. Conte (R - MA), the ranking minority member of the full Appropriations Committee, in what can only be termed a farcical charade at our expense. I wonder how many trees he killed by requiring that the Congressional Record contain copies of the five articles from supermarket rags? Traxler accepted the amendment and thereby forestalled an electronic vote in front of TV cameras, in which Members would have been required to vote for Little Green Men at the expense of terrestrial education. This ambush was all orchestrated superbly, at the last minute and although we tried, there was nothing we could do to derail this farce. Perhaps you will maintain a more dignified and detached posture



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as you read the chronicle of this debacle — I just get mad!!!!

Senator Garn has been briefed on these manoeuvres [sic; **British variant of "maneuvers"**], and he still seems willing to champion SETI in the Senate Appropriations Subcommittee, but he could clearly use some help. Barbara Mikulski, the Subcommittee Chair, is clearly the key and we are trying to arrange for as many people as possible to write to her or go see her in her office. The key points to make are the scientific legitimacy of SETI in its own right (as opposed to Machtleys and Conte's portrayal), as well as it's technological and educational spin-offs. We are trying to urge her and her Subcommittee to act on a higher plane of logic and statesmanship than the action on the House Floor demonstrates. It is necessary to acknowledge that her Subcommittee will have to make very difficult choices in a constrained budget climate. However, we hope that the Subcommittee can rise above the actions of a few uninformed members of the House.

It would be really helpful if you could write to Mikulski and members of her Subcommittee (list enclosed) and express your opinions about the current situation. You should send copies of your letter to both Machtley and Conte (their addresses are below), and the SETI Institute would appreciate receiving a copy. Any of you who live in Maryland (or know someone who does) and have the opportunity to go see Mikulski in her DC Office or back home in her district office can be particularly effective.

Thanks for your consideration. I hope I will not have to write to you again with yet another variant on the theme of SETI vs. Congress, but we certainly could use your help now. Unfortunately I have not been able to coordinate this letter with the Deputy Project Scientist, Sam Gulkis, because he's away from the office at the moment, but I am sure he would also want to add his plea for your help.

[\[Click on image below for a larger version.\]](#)

Sincerely,

-  
Jill Tarter [Note. Jill's signature deleted.]

Project Scientist

NASA SETI MOP

Enc:

Copy of Congressional Record - June 28, 1990

Congressional Listing

Addresses for copies:

Rep. Silvio O. Conte

U.S. House of Representatives

2300 Rayburn House Office Building

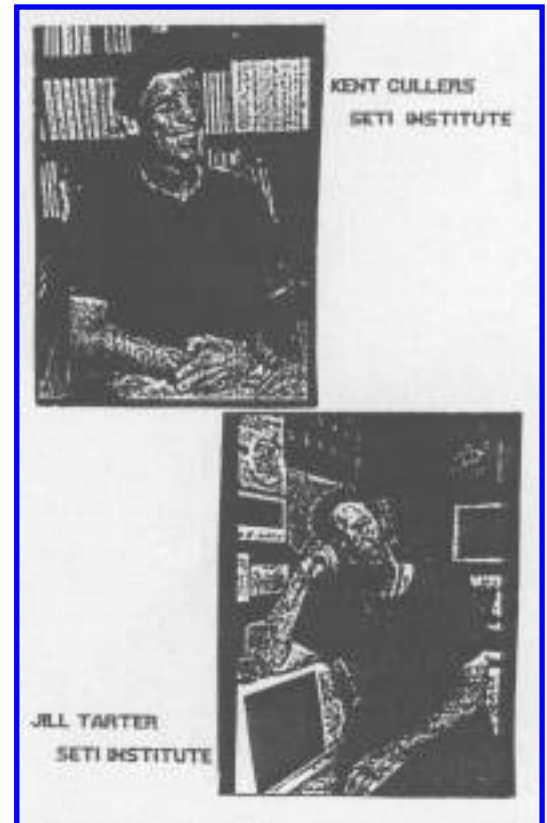
Washington, DC 20515

Rep. Ron Machtley

U.S. House of Representatives

1123 Longworth House Office Building

Washington, DC 20515



**MEETING NOTES:**

***16 June 1990 -- EP***

The meeting began at roughly 10 am. Those in attendance included Dixon, Brown, Phillips, Janis, Goodall, V.Horne, Hanson, and Hanson's guest Kevin Alspaugh. Due to Barnhart's absence, Dixon chaired the meeting.

Dixon reports that the Dispatch writer who wrote the erroneous articles of a couple weeks ago has been calling him for more info. There has been a follow-up story placed in last week's Dispatch, this time more factual. Also, a letter to the Editor was drafted by Hanson, signed by all at the meeting, and will be sent to the

Dispatch, with more to possibly follow. Dixon also reports that the NASA grant has increased slightly, adding some funds for a trip he must take later in the year, and other incidentals. He is also assisting work on a proposal to OSU for a grant to repair the flat. Part of the grant would include the ESL dep't designing a new horn feed system. Dixon also reports that Dr. Stuart Kingsley will be at next Tuesday's meeting at Dreese to give a talk on the relative merits of utilizing the optical spectrum to conduct a SETI search. Dixon additionally reports that NASA has asked for proposals to use a communications satellite. OSU has urged him to write it, which will request time on the satellite to link computers together. Dixon sees this as an opportunity to send data directly from Big Ear to NASA or another data analysis center for immediate analysis.

V.Horne reports that he and Janis are helping to put together the paperwork pertinent to the flat repair; trying to assign cost estimates, etc.

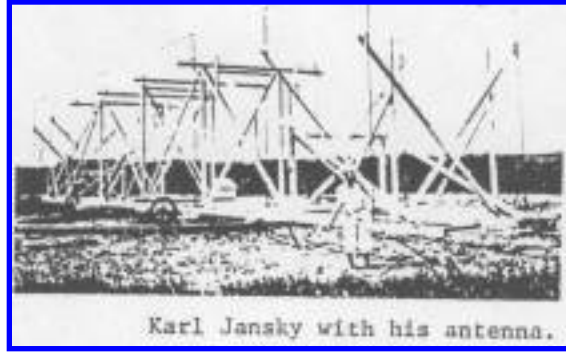
Janis reports that he is attempting to track down a refrigerator for the RO office and will let us know if he can locate one. He also reports that the phone and the A/C in the focus room have both been repaired.

Brown reports that he has sorted the Argus files and assembled them. He has also been filling in woodchuck excavations, in an obvious attempt to aggravate them. They have been re-excavating them rather rapidly, he states. In addition to all this labor, he has been able to get the chart recorder almost fully functional again. Also, the synthesizer has been replaced in the rack, and awaits hook-up and testing, which he will accomplish soon.

Hanson reports that he has run some diagnostic tests on the card-to-magnetic tape data transfer project, and he has met with some failures. He states that he will continue in this effort, and will keep us informed as to the results.

The meeting broke up at roughly 11:30 am, with most going off to their respective tasks.

## Karl Jansky with his antenna



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Designed by Jerry Ehman

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