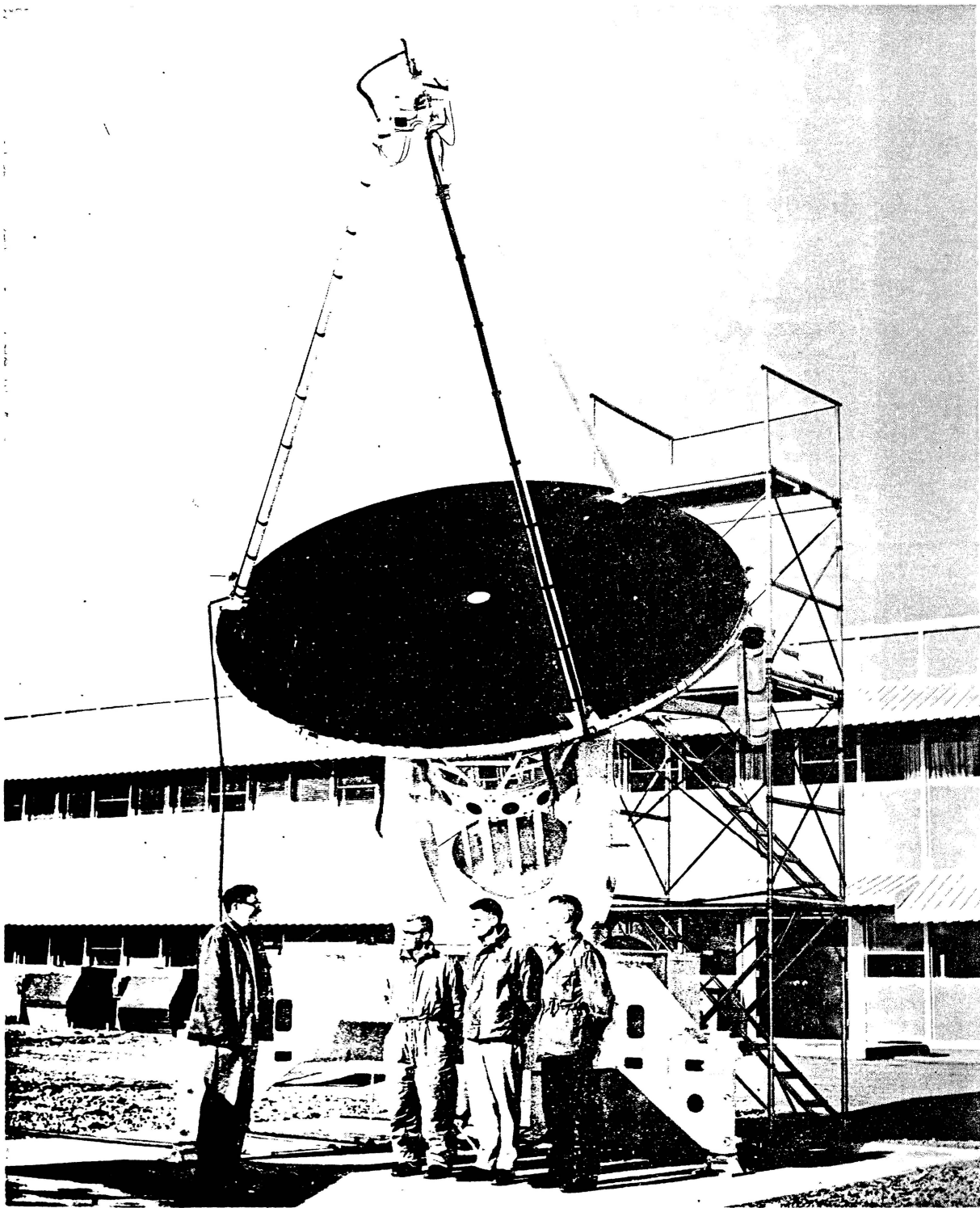


The OBSERVER

Vol. 3, No. 2

November 27, 1963



THE MILLIMETER WAVE PROJECT

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Peter B. Good

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Norma Simmons	Bill Kuhlken
Howard Lambert	Phyllis Jackson
Sis Michael	Tony Miano
Dick Hiner	W. W. Pleasants

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The Millimeter Wave Project
by
Arnold Davidson

Perhaps everyone has noticed the reoliferation of telescopes springing up on the concrete pad at the rear of the laboratory building. They are to be used in conjunction with the millimeter wave project and consist of a 3-foot, a 5-foot, and a 12-foot telescope. A general description of each one, plus its intended use is listed below.

3-Foot Telescope

This is a dual purpose telescope, intended for use at 10 microns (intermediate infra-red) and 1.4 millimeters. It is a Kennedy spun cast dish with a diameter of 36 inches, a focal ratio of 1, a beamwidth at 10 microns of less than 10 sec of arc, and a gold coated surface with an accuracy of better than $\pm .001$ inch. The mount is a modified equitorial optical telescope mount provided with local control and optical guiding. At the present time, the telescope is being used to develop better receiver systems for the 12' telescope.

5-Foot Telescope

This installation is practically the same as described in an earlier edition of the Observer; the only difference being the mount and location.

The mount is of the same type as the 3-foot, only a little heavier. Both local and remote control is provided with an optical telescope for local guiding, and a closed circuit TV system for remote guiding.

The following programs are being carried on at this time:

- 1) Solar extinction measurements made under varying conditions of atmospheric transmission.
- 2) Temperature profiles of the lunar surface during the various phases of the moon.
- 3) Planetary detection and measurement with particular emphasis on Jupiter and Venus.
- 4) Receiver development, in particular, low noise, first stage audio amplifiers.

12-Foot Telescope

This is also a Kennedy spun cast dish mounted on a modified surplus Nike-Hercules radar mount. The dish and mount will have the following parameters:

- 1) Diameter - 145.0 inches
- 2) Focal ratio - 1
- 3) Surface accuracy - $\pm .002$ in.
- 4) Beamwidth (theoretical) - 1.3 min. at 1.4 mm
- 5) Surface - Spun aluminum dish with 3 layers of cast epoxy, overlaid with a thin gold paint coating.
- 6) Drive - D-C stepping motors, providing a continuously variable drive rate from 0 to 20 deg/min on both axes.
- 7) Pointing accuracy - There are three independent methods of pointing the telescope; one local, and two remote.
 - a) Optical - A 6 inch, F/10 refractor guiding telescope is mounted outboard of the dish and aligned with the beam. This will be used for positional checks and aligning the main read-out system.
 - b) Closed-circuit TV - A TV camera is mounted outboard of the dish and aligned with the beam. This will be used as a positioning device for certain types of programs as well as a back-up system in the event of a failure of the primary positioners.
 - c) Digital encoders - Digital encoders of the type used at the 300' telescope and capable of supplying highly accurate (± 10 sec of arc) positional information have been mounted on both axes. These transmit telescope position in degrees, minutes, and seconds of azimuth and altitude to the operating console in the Cryogenics Laboratory.

All telescopes are now complete with the exception of the 12-foot; however, preliminary observations of the sun have been made and the results look very encouraging.

Letter to the Editor of N.R.A.O. "Observer"

Drawing on memories of the past when I once had the opportunity (let's call it that way) of being editor of an organization paper, I can still remember the: aches and pains, groaning and moaning, begging and threatening it took in order to get some "Scoop help", to give you any news of events etc.

It is with this qualification that I would like to, I am sure in the name of every NRAO employee, warmly congratulate you on a "Job well done" for our last issue, and sincerely wish you lots of cooperation to fulfill the old saying, "Keep up the good work".

In the meantime no matter what, I know that as an old trooper, you'll dismally often enough will have to say, "Well, the show must go on".

Again lots of luck!

Sincerely,



John A. Hungerbuhler

EDITORIAL

The first of the NRAORA filmic presentations was held on Monday evening, November 18th, in the Jansky Lab. "Love in the Afternoon" was shown to an estimated turnout of over 100. The film was (according to all) a smashing success. I know that most everyone certainly was well entertained for the film was really outstanding.

I feel that we have a responsibility to the people of the NRAORA and therefore, want only to bring you the "cream of the crop." Films to be presented are very carefully scrutinized before ordering so that only the finest in adult comedy and drama are shown. These great films, and I mean great, will be premiered over the coming months: "The Caine Mutiny", "Beau Geste", "Experiment in Terror", "Anatomy of a Murder", "Mr. Smith Goes to Washington", "Lonely are the Brave", "Grapes of Wrath", "Tender is the Night", "Treasure of Sierra Madre", "Sahara", and many more.

This is just a small sample of what is in store in the way of excellent feature films. Of course, there is one, and only one, stipulation; your attendance is required. But, if you turn out in full force, as you did for "Love in the Afternoon", then you can certainly count on more high quality films. All it takes is your support; so support this NRAORA project and the NRAORA will support you.

Peter B. Good,
Editor

ABOUT TOWN, Nigel Keen

Society Column:

Mrs. Montague Tupman, our local social leader, informs us that she went shopping in Marlinton last Thursday. Well done, Mrs. Tupman!

Mr. Nathan Mafia, the well know financier and philanthropist, has recently displayed considerable interest in the communal poolroom in the basement of the residence hall. It was he who financed the renovation of the tables, previously spoiled by the high heels of the dancing girls.

There is no truth in the rumor that Senator Goldpockets has nominated Aunty Mabel to run for the Vice-Presidency in 1964. As his press-aide Marvin Horsecollar put it, "the old boy's enough of a liability already, without involving Aunty".

Local News:

There is no truth in the rumour that the new, exotic Pocahontas-Hilton Hotel, to be situated at Green Bank, will be in the shape of a radio telescope. This is a pity, since this appears to be an excellent method of collecting the more convivial cosmic radiations.

We are pleased to announce the discovery of a new radio source, Snodgrass X. Professor James O'Faraday Snodgrass, who is shortly to receive the Order of Ozma for his work, discussed his discovery with your correspondent. As he put it, "You cannot be sure that anything on your record is a source, so we are forced to conclude, on a statistical basis, that a source of some sort exists. We should not be disconcerted by the variation in declination, right ascension, brightness temperature, etc." Professor Snodgrass informed your reporter that the

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"typical record" (which we had intended to show, but which was censored by the C.I.A.) really is typical.

Sad Footnote:

Everybody knows the children's game "whispering". You stand in a line, and the first person whispers a message to the second person, the second person whispers to the third person, and so on, down the line to the last person. The last person then recites the message as they understood it. Unfortunately, your correspondent was the last person in a less healthy version of this game, played at Green Bank. It concerned the convivial consumption of alcoholic beverages. Since the U.S.A. was founded on the principle (amongst others) of "you mind your business, and I'll mind mine", it would seem a good time to stop the game... Perhaps we could visit the "beer joint" without the censure of the social prudes; and, Heaven knows, West Virginian beer is to weak even for ecstasy, let alone vice. We are reminded of the words of Stendhal: "women who are always taking offense might well ask themselves whether they are following a line of conduct, which they think really and truly is the road to happiness. Is there not a little lack of courage, mixed with a little mean revenge, at the bottom of a prude's heart".

THE CAFETERIA, Virginia Irvine

The "Hill House", where Dr. Findlay now lives, once served as the residence hall and cafeteria for the NRAO. The first guests were Dr. Reber, Dr. Findlay, Dr. Menon, Mr. Meredith, Mr. Crews, and Mr. Omar Bowyer.

In October 1959, the present cafeteria and residence hall was completed just in time to feed and house the AUI Trustees.

The first employees were Virginia Irvine, Verna Tacy, and Cleo Harper. Included in their duties were cooking, cleaning, laundering, and even janitorial chores.

However, as the work increased, additional help was hired. Madge White took over the cleaning responsibilities of the residence hall while Maxine Foe and Anna Grace Ware were added in the kitchen. Kathryn Moss is on call when needed. For this staff, the day begins at 6:30 AM and concludes at 7:30 PM. This is when the tables and chairs are cleaned, fruits and juices are placed in the cooler, and the coffee prepared. At 7:00 AM Cleo has to be ready for the hungrey risers.

Verna, in her spare time, starts lunch, brings food up from the freezer, and bakes pies and cakes.

Ovens, broilers, sinks, and pots and pans have to be continually clean as the day's meals are prepared.

In addition to the daily chores in the cafeteria, we are called upon to clean the houses for transient guests.

The daily life of our staff is not an easy one and is often unrewarding, but the love of our work helps the day to pass swiftly. We shall continue to do our best and hope we can please as many as possible.

"There was never a man so empty as the man who is full of himself."

A psychiatrist says, "conciety is a form of illness. It's a strange ailment that exhilarates the victim and makes his associates sick."

"We may not be the first to reach the moon, but we'll be the first to send foreign aid."

You can do a lot of bluffing by keeping your mouth shut

Beginning with this issue, a biography section will appear in your "Observer" each month. Who knows; your biography may be next??

BIOGRAPHY OF JOHN W. FINDLAY

John Wilson Findlay was born in Kineton, Warwickshire, England, on October 22, 1915. Early schooling was in Kineton and then in Stratford-on-Avon -- same school attended by William Shakespeare. He then went to Cambridge in 1934 to study mathematics and physics. He graduated with first class honors in physics from Cambridge University, England, in 1937, and received the Ph.D. degree from that University in 1950.

Dr. Findlay started research in 1937 while Lord Rutherford was Cavendish Professor at Cambridge. At the start of the second World War in 1939, he worked for the Air Ministry developing radar and from 1940 to 1942, he was at the R.A.F. headquarters of the Middle East Command in Cairo, Egypt, engaged in planning, siting and evaluating ground radar stations throughout the Command.

From 1942 to 1945, Dr. Findlay was Scientific Adviser to the Command Radar Officer at Air Headquarters, New Delhi, India, and later at Kandy, Ceylon. He assisted the R.A.F. in the development of ground radar defenses in India, Burma, and Ceylon.

From 1945 to 1953, Dr. Findlay was a fellow of Queens' College, Cambridge, and a University demonstrator in physics at the Cavendish Laboratory. His research was in ionospheric physics and he spent six months during 1952 as a guest investigator at the Department of Terrestrial Magnetism, Carnegie Institute of Washington, D. C.

From 1954 to 1956, he was a senior principal scientific officer in the Ministry

of Supply in London working on basic electronics research and on development of ground radar for the R.A.F. and Army. He came to the USA at the end of 1956 to work for Associated Universities, Inc. At that time Dr. Emberson and Dr. Heeschel were already involved in the planning and developing of the Observatory.

----- HOW TO BECOME A CITIZEN, J. W. Findlay

Generally, it is necessary to have been a resident in the United States for five years and to have entered the country holding an immigrant visa before one can take the first step towards citizenship. This is the course I followed, and it therefore began when I got in London the immigrant visa on which I entered the country. Such visas are, of course, allocated on the quota system; so many are made available to each country each year.

The evidence that is provided to immigrants is a small green identification card. While still an alien, this card serves as a passport for re-entering the United States if one has traveled abroad. While a resident alien, there are no particular restrictions on ones movements, but each year in January, all aliens register their home address with the U.S. Department of Naturalization and Immigration. It might be well to make clear also that resident aliens pay taxes just like citizens -- at least one person has asked recently whether I shall like paying taxes.

After five years, a petition for citizenship can be filed. Some years ago, it was necessary to have filed a legal "declaration of intent", but this step is no longer needed. In

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fact, I did file such a declaration since it was requested by an agency which was processing a security clearance for me. The citizenship petition is a form full of questions about ones parents, place of birth, etc., -- rather like an expanded passport application.

This is checked by the U.S. Department of Naturalization and Immigration, and, if satisfactory, an interview is arranged. This step took me several months, since no one could make a set of fingerprints good enough to satisfy the Department of Naturalization and Immigration, but eventually the examiner himself took some in Charleston.

Ted Riffe and Sidney Smith came to Charleston with me, and everyone was asked questions by the Department of Naturalization and Immigration office. Considerable care was obviously being taken at this step, and both Ted and Sidney were questioned in some detail. The applicant also proves his ability to read and write English (sign your name!) and answer a succession of questions on the laws and practices of the United States;

- a) How many amendments are there to the Constitution?
- b) How many Supreme Court judges?
- c) Who appoints them and for how long?

are typical.

After this session I paid a \$10 fee (cheap compared to the celebration dinner we ate at the Clover Club on the way back) and the worst was over.

The final step was to appear before Judge John A. Field in the Federal Courtroom in Charleston on November 8th, for the final ceremony. 22 new citizens took the oath at the ceremony which was followed by a reception organized by the Six Laymen of Charleston.

The certificate of naturalization arrived by mail two days later.

NATURALIZATION CEREMONY

Federal Courtroom Charleston, W.Va.
Friday, November 8, 1963

OPENING OF COURT - Eleven o'clock A.M.

ADVANCEMENT OF COLORS - John Brawley
Post No. 20, American Legion,
Johnny E. Parsons, Commander

INVOCATION - The Reverend William A. Benfield, Jr., D.D., Minister of First Presbyterian Church, Charleston, W. Va.

PRESENTATION OF APPLICANTS - Mr. G. Morell, United States Immigration and Naturalization Service

OATH OF ALLEGIANCE BY APPLICANTS - Mr. Virgil F. Frizzell, Clerk, United States District Court

ADDRESS OF WELCOME - Honorable John A. Field, Jr., Judge of the United States District Court for the Southern District of West Virginia

PLEDGE OF ALLEGIANCE TO FLAG BY ALL PRESENT - Led by Commander Parsons

(While still standing)

SOLO - "The Star Spangled Banner" - Mr. William Haynes, Accompanist - Mrs. Robert Agsten

ANNOUNCEMENTS BY THE COURT:

Reception honoring new citizens, sponsored by The Six Laymen, at noon, Rose City Banquet Room

APPLICANTS PLEASE REMAIN FOR DISTRIBUTION OF BOOKLETS AND FLAGS:

Bible: Clyde Murdock, Union Mission
Bill of Rights: The National Society of Colonial Dames of West Virginia
Citizenship Manual: Anne Bailey Chapter, Daughters of American Revolution

Our Flag: U.S. Marine Corps
A Welcome to Citizenship: United States Immigration and Naturalization Service

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American Flags: John Brawley Post
No. 20, American Legion

RETIREMENT OF COLORS - John Brawley
Post No. 20, American Legion

CLOSING OF COURT

The staff and employees of the NRAO
wants to wish Dr. Findlay a hardy
"congratulations" and a "well done".

WHAT GUN??, Fred Crews

Aside from the arguments about gun
calibre, interesting arguments are often
heard as to the wisdom of the choice of
types.

Of course, in the field of high power
center fires, four main types exist.
These are the bolt actions, lever
actions, pumps, and semi-automatics.
Proponents of the bolt action gun point
to accuracy and the safety of the
shooter when high breech pressures are
developed. Few "leftie" bolt actions
are available, forcing some left handers
to go to other types. The superior ac-
curacy of bolt actions remains un-
questioned. Lever actions lead in
popularity in the eastern part of the
United States for hunting purposes be-
cause they are speedily operated, but
lack fine accuracy and strength, having
little facility for the release of over-
pressure. The pump has about the same
merit as lever actions, but have been
built in calibres demanding greater
strength than have the lever actions.
For the man who only wants mediocre
accuracy and has plenty of ammo, the semi-
automatic is the answer.

In the field of shotgun, single shots
certainly hold their own. For some
unknown reason, bolt actions are very
impopular. Many people like doubles,

but one pays as much or more for a
double as for a pump or semi-auto-
matic, so most people think it better
to have five shots than two.

One asks, what is the best type of
gun for me regardless of whether
they are purchasing a .22, center
fire, or shotgun. There is cer-
tainly a great deal of merit in
sticking to the same type of action
in the various types of guns.

Each person answers the question
himself somehow - and what really
matters is what one puts in the
game bag. Despite current adver-
tisements, game cannot distinguish
whether the lead that searches them
out comes from a Browning super-
posed, a winlite barrel, the gun that
won the west, or the beloved "poke-
stalk".

A CROSS-CONVOLUTING POLYPHASE ORTHOGONAL ICONOCLAST FOR THE NRAO INTERFERNOMETER, I. Pauliny-Toth

Mao Sun Yat Sen Smythe and N*g*1
K**n.

It is proposed that the method of
A.D.Lieber-Augustin be followed.
The output of the separate ailments
of the infernometer will be led to
the median of the triangle formed
by the vernal equinox, the State
liquor store in Cass and N*G*L
K**N. (This is a scalene triangle:
the last side is much shorter than
the other two). The outputs will be
fed into the genuflecting section of
the iconoclast. The latter is to be
the model B version made by Komsomol,
Inc., with nine penumbral defectors.
(The defector law was recently de-
termined by a decision of the Supreme
Court, Justice Splinge dissenting).
The signals are increased and mul-
tiplied - see Genesis, Ch. 1 in the
gynocule nodule, the product being
fed through a low-class philtre into

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the osculating auricular medulla. They are there totally absorbed and must not be disturbed. A new signal is therefore generated by the yokel auscultator in the cloistron. This is added by a potential divider to the voltage at the junction of the aforesaid nodule of the first part, punched on paper tape and used to show that the Universe is expanding, thus Ryling many astronomers. A complete mathematical treatment of this device may be found.

By Krypton

"THE GREEN ROOM"

The pool room is now open for members to enjoy a good game of pool. A total of \$430.84 has been used to put the tables in good conditions. All the tables were covered, new cushions were put on the large 4-1/2' x 9' table, new pockets replaced the old ones on the two 4' x 8' tables. Three new racks of balls, along with twelve new cue sticks, and three new triangles were purchased.

This is one of our better winter sports, and since we have invested a fair amount of money to make this activity more enjoyable, it is recommended that each individual be more conscious of giving our equipment the very best of care.

A few simple rules that are placed in the pool room should be observed, such as:

- 1) Do not sit on tables.
- 2) Do not set drinks on tables.
- 3) Use bridge
- 4) Cover tables when not in use.
- 5) One foot on floor at all times.
- 6) Loud noise or profanity prohibited.
- 7) Do not lay cigarettts on tables.

- 8) Place cue sticks in rack when not in use.
- 9) Do not move tables.
- 10) Use of the NRAORA Recreation facilities in this room is restricted to:
 - a) NRAORA Employee-Members and their personal guests.
 - b) NRAORA Family-Members over 18 yrs. of age.
 - c) NRAORA Family-Members under 18 yrs. of age accompanied by Employee-Member.
 - d) Transient residents over 18 yrs. of age staying in the residence hall.
 - e) Guests may be brought only by Employee-Members.

A ruling by the NRAORA Board of Directors was to open the pool room during lunch hours (approx. 11:30 AM to 1:30 PM) and from (5:00 PM to 12:00 PM). Monday through Friday with guards making periodic checks during their security rounds. Keys will be left at the Guardhouse on Saturdays, Sundays, and holidays for use upon request.

Yours for better Billiards

BIRTHDAYS - December

- | | |
|----|-----------------|
| 4 | Paul Devlin |
| 12 | Naomi Daniels |
| 13 | F. J. Callender |
| 15 | Bob Uphoff |
| 29 | Fred Crews |

WEATHERING HEIGHTS

High Temperature: Nov. 17 - 68°
 Low Temperature : Nov. 13 - 20°

Forecast:

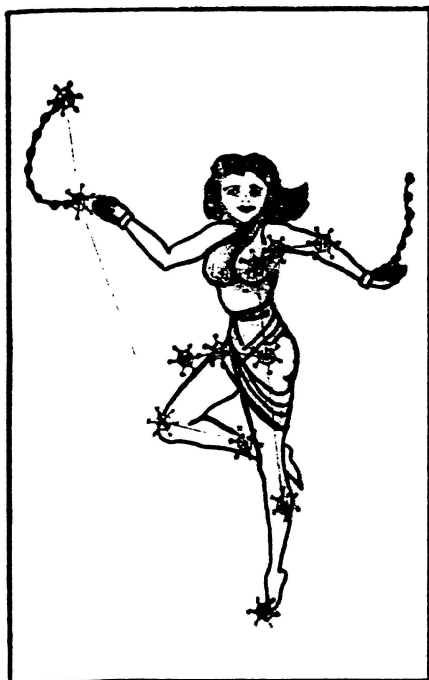
Smoggy, clearing and remaining mild throughout month of December with average highs of 75° F.

Oops!!! That's the forecast for Los Angeles. For NRAO -- BLIZZARDS!!!

SMART PARTS FROM GRAPHIC ARTS

Astronomy ----- you see,
 Now, does interest me;
 When perchance in a book
 I got a good look
 At the sexy chassie
 Of the Celestial-Lassie,
 Miss M-31, you snook!

Here is Miss M-31!!!!!!



ANDORMEDA

Andromeda is a constellation of the Northern Celestial Hemisphere. It extends from the constellation Perseus to the northwest corner of the great square of the constellation Pegasus. The star at this corner of the square is actually the toe of Andromeda's foot and not a part of Pegasus. The nearest of the great spiral galaxies can be seen in Andromeda. Andromeda was a character in Greek mythology.

Andromeda, a maiden in ancient Greek mythology, was the daughter of Cassiopeia and Cepheus, rulers of Ethiopia. Cassiopeia dared to compare her own beauty with that of the Nereids. In anger, these sea-goddesses sent a sea monster to attack Ethiopia. An oracle said Andromeda should be sacrificed to the serpent to save the land. Perseus saw the beautiful maid chained to a rock, fell in love with her, and killed the monster. After her death, Andromeda became a constellation.

Next issue - Symphony of M-101?!

We would like to welcome a new draftsman to our section. His name is Robert E. McMillion, Jr., better known as "Bob". He is a 1962 graduate of St. Albans High School in St. Albans, W. Va. where he was president of the St. Albans High School Art Club. He attended West Virginia State College, majoring in Mechanical Drawing and Architectural Design.

His leisure time interests include drawing, painting, reading, and bowling. He is presently residing in the Observatory Residence Hall.

Good luck to you Bob, we are glad to have you aboard!!

ADMINISTRATION REPORTS

Norma Lee Simmons and Richard D. Brockway will be married in an open church wedding at the Methodist Church, Durbin, West Virginia Saturday, December 14, 1963, at 3:00 o'clock. Reception immediately following the ceremony.

What's this we see, Jerry Shears driving
a new F-85 Olds? When do we get a ride
Jerry?????????????

We would like to welcome the following
new employees:

Donald J. Cardarella
Robert McMillion

LATE MONKEY "BUSINESS"

Norma Simmons is a busy girl these days.
On the November 2nd weekend she spent
the weekend at Waynesboro, Virginia
where she was bridesmaid at the Orndorff-
Ergenbright wedding.

On the November 9th weekend, Norma went
to Charleston to take care of a few
minor details in connection with her
fast approaching wedding. Just hope
Norma is still on foot come December 14th.

French Beverage heard the call of the
wild the week of November 4th, and went
on a hunting spree. However, he won't
say what he returned with.

Carolyn Dunkle felt the need of a
vacation and spent it at the University
of Virginia Hospital at Charlottesville.
Her vacation was a bright and sunny
success.

Shirley Carpenter was hostess at a baby
shower given November 8th in honor of
Nellie Arbogast. Nellie was a former
employee at the NRAO cafeteria.

When you see a bright shiney 1964
Plymouth (beige) auto drive up in front
of the Lab Building, it is Mr. Callender's
new purchase.

LAB GAB

SOMETIME

Sometime when you're feeling important,

Sometime when your ego's in bloom,

Sometime when you take it for granted

You're best qualified in the room,

Sometime when you feel that your going

would leave an unfillable hole,

Just follow the simple instruction

and see how it humbles your soul.

Take a bucket and fill it with water,

Put your hand in it up to the wrist,

Pull it out, and the hole that's remaining

Is a measure of how you'll be missed.

You may splash all you please when you

enter.

You can stir up the water galore,

But stop, and you'll find in a minute,

That it looks quite the same as before.

The moral in this quaint example,

Is do just the best that you can,

Be proud of yourself, but remember,

There's no indispensable man.

--- Lab Gab continued on next page ---

Eert Hansson and wife are leaving NRAO for Sweden November 30, after a stay of over a year. We hate to see them go, but reliable scuttlebutt has it that the American way of life has its grip on the staunch old Viking. We hope to see them back in the near future.

Carl Davis has missed again.

That turkey is smarter than he is. Carl says that he's either too far away, or it moves too fast, or that there isn't enough shot in the shell to make a proper barn door pattern.

Carl Wooddell's little receiver shop is going full blast - there are enough receivers and goodies and elves around to make it look like Santa's north pole work shop.

John Hensley and Co. have just rearranged their little shoppe - and I don't know where all the room came from - anyhow he said he'd appreciate it if ya'll would give him the business. -----?

L. Ross & Co. have an order for the front end for an occultation receiver, and J. Dolan's group will handle the nether-end.

Since when have we taken up the black arts??????

Joe Zatta and family have had a bit of misfortune by having to attend the funerals for two of his uncles who died one week apart.

The last one attended was the weekend of the 6th.

Old Sarge sez - "It's nice to be important, but more important to be nice!"

Claude Bare, with assistance from Jim Dolan, was HIGH SCORER in the 1963 CQ World Wide VHF contest for 50 Mc.

Congratulations you all!!!

Anybody suffering spilled coffee burns????????? See Dewey Ross for a very "different" type of cure. Actually the credit goes to Dr. Davis.

Note of Appreciation from Lyle and Polly McPherson

We would like to thank all of those who contributed blood for Polly while she was in the hospital.

We are sorry to say that Mrs. McPherson entered the hospital again on Nov. 18, for major surgery. Her address is: Lynchburg General Hospital, Lynchburg, Virginia.

We wish her a most speedy recovery!!!!!!

THE NONSENSE CORNER

Little Jack Horner sat at his computer, trying to figure out π - He turned on his memory drum-and pulled out his sum, and said -

Can you finish this???

The prize for the best answer will be awarded the London Bridge - which was just purchased from Nigel Keen.

We want to wish, "Old Herman" of the receiver lab, a speedy recovery from major surgery at Dr. Lefty's Tonsorial Establishment. It seems they had to amputate Herman from his follicle appendages.

Pride is the only disease that makes everyone sick except the person who has it.

You might think this doesn't belong in the "Nonsense Corner" and I actually believe you're right!

IT'S THE WORKS

Jim Arbogast and Chester Cassell enjoyed a three day vacation in Beckley, West Virginia the week of November 18, 1963. Courtesy of Uncle Sam.

Paul Devlin was in Charleston on business November 15, 1963. On November 18th he was called on an ambulance run above Cheat Bridge to move Mr. Bert Smith, Jr. to the Marlinton Hospital.

Clifford Barkley was hunting in the State of Virginia on the 18th, 19th, and 20th of November.

Carolyn Ayers (St. Clair) spent the week of November 18th with her parents, Mr. and Mrs. Claude St. Clair.

Robert Elliott was on a two week vacation - weeks of November 11th and November 18th.

Charles Puffenbarger and Merritt Gum were in Salem, Virginia on business the 18th and 19th of November.

The First Aid Room is now in the Works Area Building. It was moved from the Arbogast House on November 18th.

All employees are invited to inspect the equipment room which houses the fire truck, ambulance, and first aid equipment in the Works Area Building.

"Red Emergency Telephones"

Dial 300

The Red Telephones have been installed in various areas on the site. These phones are to be used for incoming Emergency Calls Only. When in need for any emergency; fire, ambulance, guards, call the above number.

Off site calls for emergency - dial .56-2300. The Guard House also has another phone - Ext. 283.

SPORTS

On Oct. 6th the Junior members of the Green Bank Rifle & Pistol Club completed the National Riflemens Association 50 ft. small bore rifle course of 13 weeks on gun handling and gun safety. Awards and certificates were presented to the Junior members at the November meeting by Theo. Zatta, President. Instructors were Elmer White, Conservation Officer and Paul Devlin, NRAO Safety Officer. On November 21st, this group of children, ages 11 to 15, were shown on a sports program on television, Channel 4, Oak Hill, West Virginia.

FISCALLY YOURS

New Drinks in "Pop" Machines!!!

A new variety of "pop" has been placed in the soft drink vending machines. If you haven't noticed them, they are called "Patio Diet". For you people who are afraid of gaining too much weight, you might try it, as they contain only one calorie in each bottle compared to seventy calories in the regular bottle.

The "Happy Hohmanns" Visit NRAO Again!!

Fred Hohmann, Auditor from the Internal Audit Division, Brookhaven National Laboratory, spent the week of November 11th-17th at NRAO. Fred was accompanied by his wife Arlene, and children, Suzie, Butch, and Wendy. Everyone always welcomes Fred and his family back. After spending several months with us during the summer of 1962, we feel they are "one of us".

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Grouse (native pheasant) seem to be less than plentiful in this area according to Don Hovatter who spent November 14th, 15th, and 16th hunting them. He finally had a little luck (3 birds) by traveling to Tucker County and hunting in his native territory.

Don says that although small game appear scarce in this area, he has seen plenty of sign to indicate that there is an abundant deer population.

ENGINEERING ESSENSE

The associates of the late ~~Karl~~ Jansky at the Bell Labs in Homedale, New Jersey, have reconstructed his original telescope. The telescope arrived at the NRAO on November 14, 1963, and is to be set up on the other side of the road from the Reber Telescope, facing Route 28.

The high over head powerline at the NRAO airstrip has been taken down. The telephone polls and wires will be taken down within the next few weeks, thereby affording greater clearance and safety for airplanes.

The new airstrip has already been put to good use. Just recently, Brookhaven's twin engine Aztec had brought in some officials.

As of November 1, 1963, the Arbovale cemetery road was closed to through traffic. The closing of this road will reduce the ignition noise in the vicinity of the 85' telescope. The management of the Arbovale cemetery was very cooperative in working out the location of the new fence which closes the road in such a manner that full access is still maintained for the south entrance to the cemetery. Closing of the road was welcomed by the cemetery management because of the increasing traffic. Plans for the fence were approved by Mr. Delbert Gillispie, president of the Cemetery Association.

On November 8, 1963, the Engineering Division put in a new fill which will permit utilizing the old bridge at Boyer on Route 28 for very heavy loads; such as, materials for the 140' telescope.

The lumber and pipe storage shed has been moved to the enclosure at the new warehouse.

Two army surplus missile tracking trailers are now used for storage of electrical maintenance materials.

The 85' polar telescope for the interferometer is progressing nicely. The polar shaft was set into position on November 7, 1963, and the erection of drives and other components is proceeding.

85' TELESCOPE

All personnel at the 85' are happy to be underway again with regular observing programs.

Dr. Hogg's rotating feed polarization experiment has been installed. The new operators are getting the feel of actually becoming "Operators".

We really expect to obtain some good data very soon. I especially am happy to discover there are more positions available with this telescope than at Zenith or in the Service position.

We are disappointed that the Maser was not satisfactory; especially for a certain young astronomer working for his doctorate.

Other news at the 85' is also stupendous. Mr. Leroy Webb, operator, is proud to announce the long awaited arrival of a 10 lb 3/4 oz. son, born November 1, 1963. "What a man!"

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Another Headline: Darrell Southern will forego the delightful bliss of bachelorhood and will wed Miss Barbara Sallack on Saturday, November 30th.

Miss Sallack is the daughter of Mr. Glen Sallack, director of the magnificent Woodrow Wilson High School Band of Beckley, West Virginia.

Congratulation and our best wishes from all the fellows at the 85'.

Fred Crews and Howard Brown recently flew to Groton, Conn. to conduct tests for some new equipment for the 140' being constructed by Electric Boat, Inc. The tests went well, but we understand that the trip back was a little "chilly" for half an hour or so when a generator on the plane failed because of belt trouble.

We welcome:

Leroy Webb, East Bank, W. Va.; Gene Marcum, Webster Springs, W. Va.; Ray Walker, Boomer, W. Va.; and Don Cardarella, Greensburg, Pennsylvania,

to operations!

We understand that Len Howell is proving to be an excellent papa and willingly accepts the chores of caring for little Laura, but is a little reluctant to bathe her. They are slippery but they won't break, Len.

Dick Spurlock, popular young man around town, left November 6th for service in the armed forces. Dick will be sadly missed here and we wish him well for the next two years.

Certain archers have been bending their bows practicing diligently for a possible shot at deer. They usually get within four feet of the target. Anyone should use extreme caution, especially if you should bend over while in their vicinity.

Jacob Baars says he sort of feels like a real astronomer now that he's been working nights, but those hours from 0400 to 0600 are pretty long and low.

140' TELESCOPE

Work is virtually completed on the tent which will cover the yoke and counterweight sections during the winter. The contractor continues to fit up yoke and counterweight sections preparatory to welding.

It will be necessary during welding operations to preheat steel to 200°. Automatic temperature recording equipment has been placed in the tent and D. R. Warren is busy placing thermocouples on the steel near weld joints.

Westinghouse Electric Corp. has completed work on the Polar Shaft and the shaft was loaded for shipment on November 18th. Shipment is expected to be completed to Bartow during the last week of November.

The East and West pedestals were received during November and the complete Drives and Control system was also received from Electric Boat. The console has been placed in the pedestal building and has drawn very much attention.

Howard Lambert had winter treads put on his car on the evening of November 1st. On the morning of November 2nd he had two flat tires - what a cotton pickin way to start the day.

Mr. Grabe traded for a very nice 1961 Chevrolet, so he says, about four weeks ago. He has expected to get the car every weekend since then. Good luck in '64 Mr. Grabe, the car is depreciating you know!

Have you heard the story about the young lady who send her car to a garage to have two winter tread tires put on and only sent along one. Sounds almost as bad as the story about two farm boys who were hauling wood over a distance of about two miles with a team of horses and a wagon. They harnessed the horses, each got on a horse and rode two miles to the area where they were getting

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the wood and then discovered that they had left the wagon at home. Oh my!!!

John Ralston got a new chain saw. Sure is a big help for Mary. Chopping all that winter firewood with a double bitted axe was no fun.

Flash!!!!

Production welding started on steel, yoke and counterweight sections on November 19, 1963.

Political asylum is that which applies to a politician's brother. He has a job he can't perform, yet he knows he won't be replaced.

Wanted by the O.S.F. (Observatory Security Forces)

R. E. Grabe	Wanted for inability to see flashing red lights or hear screaming sirens.
Martin Barkley	Unlawful flight to avoid razor blades.
Marvin Wimer	Unlawful flight to avoid razor blades.
Ed Wilson	Wanted for fibbing about fishin.
Peter Good	Wanted for throwing TV antennas off tops of houses.
Carolyn Dunkle	Unlawful flight to avoid work (loafed at UVA hospital for a whole week).

300' TELESCOPE

Things look quiet at the mighty 300'.

WHY NOT REFINISH THAT GUN STOCK???
Fred Crews

A lot of us hunters and gun nuts have guns that we have been carrying around for years whose stocks are much the worse for wear and tear. To some people there might be a certain amount of pride in nicks and scratches and bare wood showing on a gun stock which perhaps help to revive fond memories of the hunt, but the appearance and accuracy of a gun are somewhat effected by the general care given the weapon.

Why not make a winter project of re-finishing a gun stock? This can be a time consuming project, but is well worth the expended effort, and with a little care one can have a stock finish that is far ahead of the average factory job.

The first problem is to remove the stock from the weapon, which in most cases is very simple, and with a little inspection is easily accomplished. Just be sure that screw drivers used fit the screw heads exactly, else you will put amateurish marks on the gun.

Next, the old finish has to be removed and can be accomplished in two ways. One is just to sand the old finish off, which is the most time consuming way. The other method of removing stock finish is to use paint remover and do some sanding. Do not use a too coarse sand paper, for this will just make extra work during the later refinishing processes. Medium grade is best.

Having the finish removed, one must give attention to nicks, dents, and scratches. Dents in wood may often be raised by the use of a steam iron on a cloth over the dented spot, or an ordinary iron on a wet cloth over the dented spot. Do not give up easily on this one, as sometimes the wood fibers are slow to right themselves. Obviously one cannot correct

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damaged wood where the fibers are either cut or missing. These are best removed by sanding - including the surrounding area - so as to not leave an area which will not fit the general contour of the stock.

Deep cuts and missing areas of wood may be repaired by using furniture repair sticks of the proper color, or by cutting out the damaged area with a sharp chisel and inlaying a diamond into the wood. People who pay exorbitant prices for guns often demand inlays into stocks. Inlays may be either matching, or a quite pleasing inlay is a contrast of early maple inlaid into a walnut stock. Plastic wood does not work too well in repairing stocks because it does not stain well, and is therefore hard to blend with the natural stock color.

Now one must sand, sand, sand. Always sand with the grain, except in areas around the grip where this is impossible. Be very careful around those areas that require rather sharp edges. Do this sanding with the butt plate on so as not to round the wood at this point. Other places to watch are trigger guard and action cuts -also barrel channels. Careless rounding is an amateurish sign. One should start with a medium grade of sand paper finish with a 400 grade of wet and dry paper. Sand paper itself is not very useful for stock sanding as it doesn't last and tears easily. Garnet papers and wet and dry papers are much better.

The rule in doing final sanding is to get the stock as smooth as one possibly can, then sand for two more hours. Next, wet the stock all over, and immediately place over heat, drying the stock very quickly, but not singeing the wood. One will be surprised to find little whiskers have raised all over the wood. Sand these off -they'll make trouble later if you don't. Whisker again, sand again, repeating the process until no more whiskers rise.

Now you are ready to start re-finishing, and have to settle for yourself just what type of finish you will use -also should the stock be darkened with stain. Staining depends somewhat on the finish used, and the refinisher's ideas about what constitutes the most desirable finish.

People swear by kinds of finishes as much as they swear by calibres and gauges of weapons. Many use linseed oil, which is perhaps the time honored solution, while its beauty and ease of repair is meritorious. Linseed oil by itself does not make a stock waterproof. Also, linseed oil if carelessly applied will gum and make a complete mess. Linseed oil is applied by pouring a small amount into the hand and rubbing the stock until the oil is completely soaked up by the wood. Then rub with the grain for as long as possible -the longer the better. Let the stock set for a few days, then repeat the process. About three applications are sufficient.

The writer has seen stocks finished with so-called axle grease which were quite impressive. Technique is the same as for linseed oil.

Spar varnish is often used for stock finish.

Commercial stock finishes that are available today enhance the beauty of the stock, are simple to apply and thoroughly waterproof the stock. Among these are Tru-oil, Birchwood, and Herter's satinsilical, and French Red Leige finishes. In general, these finishes require a stain, or combination stain and sealer. Best to use a water stain rather than oil stain if you can.

These finishes may be applied with brushes, lint free rags, or best of

all with the fingers. Start by putting on a thin coat, letting it dry, and then using fine steel wool cut the finish down to the wood. Do this at least three times as this seals the pores of the wood and builds them up.

Spreading the coats very carefully and thinly, apply more, steel wooling between each coat. Six coats are not unheard of. The final coat may be left glossy so that one gets the impression that he is looking deep into the wood. The grain of the wood will be very outstanding and very beautiful. If one does not like a lustre finish, careful application of worn steel wool, rotten stone or pumice will give a more dull finish.

Put at least one thin coat of finish inside the stock cuts and barrel channel to waterproof these moisture traps.

If you haven't misplaced the rest of the gun, you can assemble it and you're done.

Good Luck!!!!

CHILDREN'S CHRISTMAS PARTY

Definite plans have been made for the annual Christmas party for all Observatory children.

It will be held in the basement of the Laboratory Building, Friday, December 20th, 6:30 PM.

Santa Claus has been contacted and has promised that he will be on hand with gifts for all children.

It might interest you to know that as of this date we have record of 160 children eligible to attend this party. (Almost like the Old Woman in the Shoe).

If you have not turned in your children's names, please contact Harry Wooddell, Ext. 290 immediately, so that no child will be slighted.

DANCE ANYONE???????????

The NRAORA will sponsor the annual New Years dance again this year.

Tickets will go on sale December 1, 1963, one ticket per employee member. After December 15, 1963, all remaining tickets will go on sale to employee members for guests. Tickets will be \$4.00 per couple and \$3.00 stag.

The dance will be on December 27th from 9:00 PM to 1:00 AM in the Laboratory Basement. Music by Dick Chisolm & his Pals, a six member group from Elkins, West Virginia. Coffee, set-up, ice and etc. free.

For tickets see Phyllis Jackson, Carl Davis, Harry Wooddell, or Tony Hamed.

NOTICE

If anyone is interested in ordering any reloading or rifle equipment, get in contact with T. Zatta.

At present there is a quantity of powder, primers and assorted equipment which we have on hand and is for sale.

New catalogs are being sent for, to offer a wider range of brands and equipment from which to choose.

FOR SALE

1 Round Walnut Coffee Table. Good as new --- only \$10.00.

15 bags loose building insulation, @ \$1.05 per bag.

.22 cal bolt action tubular magazine rifle \$12.50.

See T. Zatta

1 boys car coat - good condition, size 18.

1 pool table - excellent condition,

See Sis Michael

The following has to be filled out and returned to Harry Wooddell whether you are a present NRAORA member or not.

I hereby authorize the NRAO Payroll Department to deduct the amount of One Dollar (\$1.00) per month from my earnings as dues for the NRAORA for the calendar year December 1, 1963 - December 1, 1964. This deduction is to begin with the last pay period in December, 1963.

Date		Name

I do not wish to become a member of NRAORA. In rejecting, I understand that my application for membership at any future date must be approved and passed on by the Board of Directors.

Date		Name

Note: Please return this form signed and dated, to Harry Wooddell, Fiscal Office, whether accepted or rejected, no later than December 9, 1963.

Monday... December 2, ... 7:15 pm

the
NRAORA
presents

the Outstanding British film...

"Hand in Hand"

- * This film has been wildly acclaimed as the film that every adult should see and no child should miss.... New York Times
- * "HAND in HAND" is delightful entertainment combined with thought stimulating conflict.... TIME MAG.
- * This film has warmth and insight. . . . British Press
- * How the children overcome religious prejudice, makes this film — an absorbing adventure. . . . NATIONAL PARENT TEACHER
- * Top notch film; excellent directing; bring your children; bring yourself; you won't regret it. . . . Peter B Good

Admission is Free to NRAORA members and families

Place: If you don't know, ask a friend see you there. .

forth-coming NRAORA motion
picture greats!

"picnic"

"experiment in terror"

"treasure of Sierra Madre"

Watch the bulletin boards for more information concerning time, date, place.

Remember, films are your best entertainment!

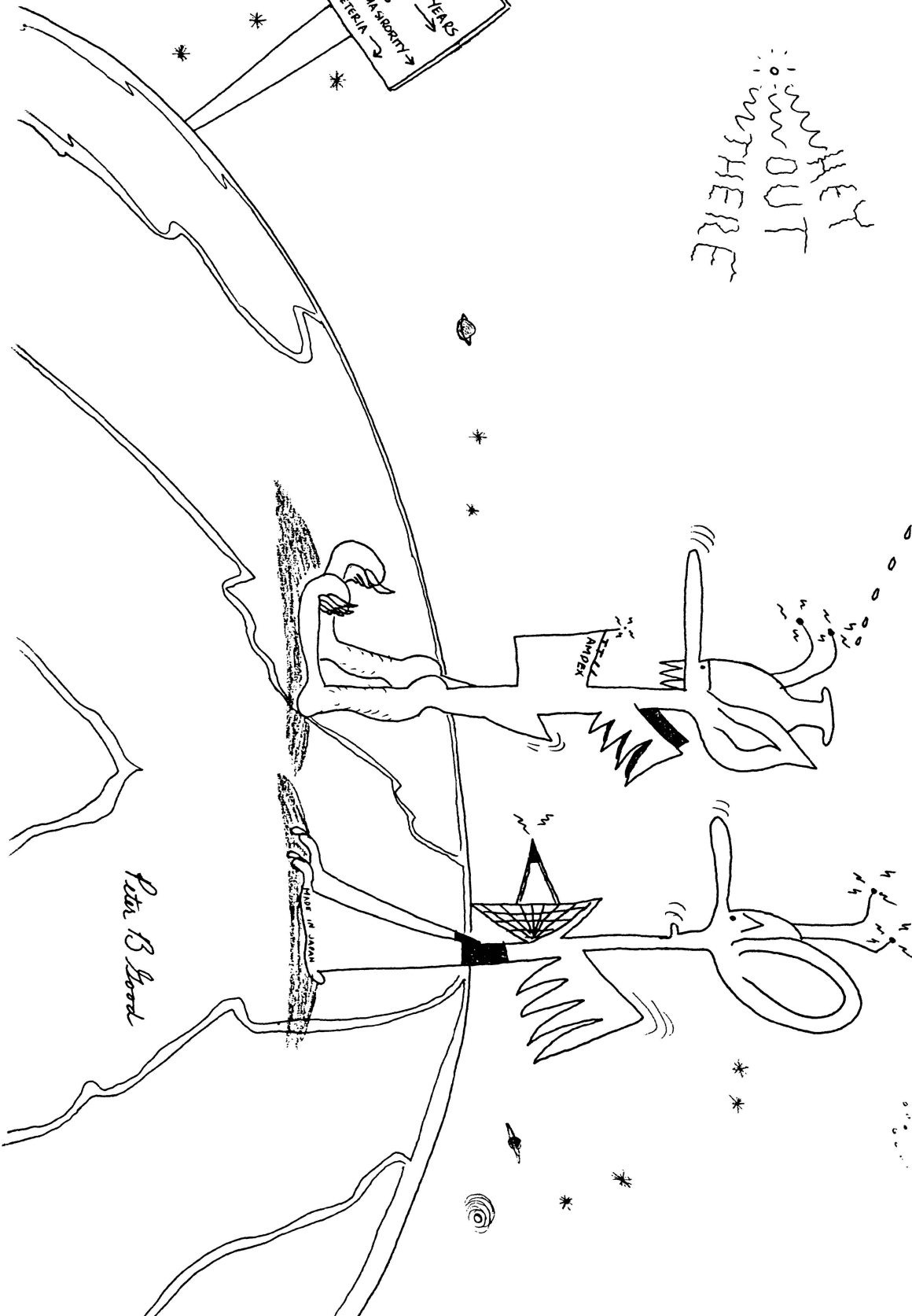
I just can't understand why those guys at the NRAO keep sending out all of those signals.

Yeh, there's no one out here, but us.

Good Grief! I knew I shouldn't have wandered so far from the flock.

WHAT
WITHOUT
WHERE

EARTH
22 MILLION LIGHT YEARS
← CASSIOPIA A ONLY 2 LIGHT YEARS →
← KARAKARA GAMA-SHIBIRITY →
← NRAO CAFETERIA →



Peter B. Hood

Happy

Thanksgiving

everyone

NRAO style, of course!