

The O B S E R V E R

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NRAO OPENS STILL ANOTHER NEW FACILITY



See page 12.

January 1967

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EDITORIAL COMMENT

by Donald Logan

There are a few things that some of us at NRAO take for granted and in so doing others may be unaware of benefits available. I am referring in particular to the National Radio Astronomy Observatory Recreation Association, known in its abbreviated form as the Rec. Association.

It was organized for the purpose of providing entertainment, relaxation, and recreation for Observatory employees because of the relative isolation of Green Bank and its inherent lack of commercial facilities. Funds are drawn from three sources; a budget allotment through AUI, membership dues (\$1 per month from each voluntary member), and the small profit realized from the sale of merchandise. The first two are self evident, but the third may need some explanation. Most of the vending machines on site at Green Bank are operated by the association which controls consumer cost, but gains a small profit. The sale, at below retail prices, of sporting goods, hobby materials, and various other items of entertainment is conducted as a service to members. The Recreation Area (in Arbovale, adjacent to the site) provides nearly all of the outdoor facilities of a country club, including tennis courts, golf driving range, miniature golf, rifle and archery ranges, ball fields, ski slope with a ski tow, picnic equipment, childrens' playground and many other activities. Several affairs are sponsored, like the summer picnic (open to all employees and their guests, regardless of whether or not they are a member of the Recreation Association), a Christmas party for all employee children, and other adult parties and dances.

At this point some of you are probably thinking "...so, what else is new? I already know this...", and more to the point of this comment, are the feelings of some employees in Charlottesville, "...what good will most of this do me, some 100 miles away in the abundant city?" And here is the basic fact of the matter. We are all working for a common interest but we still need a convenient means to bridge this Geographical gap. An example that comes to mind is the fact that our two receptionists have conversed many times, but have never met. Through the Rec. Association we can have get-togethers and social functions for both groups, perhaps at some mutually convenient meeting place, or maybe we could alternate between Green Bank and Charlottesville. Let's not pursue a policy of isolationism, which might lead to misunderstanding, distrust and even unfriendly rivalry. I know that we have lots of interesting and clever people at both locations. In fact, you probably will have more fun if you mix with people whom you don't see every day.

And finally, that dollar a month isn't a toll for entrance into anything. It's a real inexpensive membership contribution to a pleasantly exclusive club. I mean where else for 12 bucks a year can you rub elbows with famous people like Astronomers, Engineers, Outdoorsmen, Gamblers and Magazine Editors?

The following story came from Jimmie Ryder - and was addressed to "Mr. Donald Logan, Observer Eye, NRAO, Charlottesville, Virginia"

Although Wednesday, October 12, 1966, seemed like a cold morning for people in Green Bank, walking around in their long shirt sleeves, it did not chill the spirits of some cyclists touring West Virginia and stopping at the Observatory at Green Bank.

There were 26 of these brave people in all, who set out from the West Virginia state line next to Cumberland, Maryland, and were going to ride until they came to Harpers Ferry, West Virginia????? (Personally, I think they took the long way around).

The cyclists represented eight states; Maine, New York, Kansas, Maryland, Ohio, Florida, Illinois, Pennsylvania and the District of Columbia.

After answering all sorts of questions like; What's this place? Who owns it? How long has it been here? How do you look through those things? How much did they cost? Can we take pictures? How many work here? Where did they all come from? Do all the men wear beards? Can we take pictures? What good does it do to receive radio signals from outer space? What's that white skeleton structure with the wheels on? (Jansky scope) Can I take pictures? Is it always this cold up here in the morning? Do you have tours in the summer? Why didn't you let that car go past the gate? How does the ignition system interfere with the receivers when they are pointing toward the sky? Can I take pictures? -- just to mention a few.

After attempting to answer the few questions, and about another hours worth, the guard had a few questions to ask himself, before he completely lost his voice; some as follows:

How and where did you cyclists from all over the United States get together for this tour? "We belong to an international bicycling club, who maps out our routes and arranges for overnight accommodations and sets us a meeting place to get organized. Some flew to Cumberland, Md., some took cars, and some rode bicycles."

What do you do in case of sickness or accident while on the road? "We aim to have a doctor on every tour." In this case, there were two doctors and their wives.

What do you think of West Virginia? I got quite a few different answers on this one. Some I doubt if you would let your children read about, after they peddled bicycles up Allegheny Mountain. But, a few appreciated the scenery set out by Mother Nature, with the help of Jack Frost. Others would give their right arm to live here, so not being morbid or a sadist, I didn't encourage these to stay, and one decided the sooner he got to a rest room, the better he would feel about the whole thing. Incidentally, this fellow was a urinologist at a Maryland hospital. He and his wife were on a bicycle built for two. I asked him if she helped him any on the pumping up a mountain, and he said, "She'd better bring up her rear." This brought a smile from me. I wanted to laugh and I asked her if he was head of the house too? Her answer, "No, and if this cold wind wasn't blowing, he wouldn't be ahead on the bicycle either." I assumed they were newlyweds because the mister turned around and said, "These last two days are the most peaceful I've had in the last two weeks. I can't hear a word you say for the wind whistling by my ears."

cyclists - continued

At this, everybody had a good laugh and rode off into the Observatory grounds, all but the guard, and a man 61 years old from Maine. I asked him if he was going to ride in too, and he said he would wait until they got a little ways ahead of him. I asked him if he was supposed to "bring up the rear" and he said, "No, they travel too slow for me" ?????

I asked several questions, but these were the ones I remembered more vividly than the others. I thought maybe you would enjoy hearing the answers too.

"Huntin"

by Howard Lambert

That's right, "Huntin". If one is to get any appreciable number of squirrels in Pendleton County, W.Va. this year, he'll really be huntin. This is not going to be one of the years in which squirrels run up to you and lay down, ready for the pot. I have been hunting in Pendleton for about 15 years and this is the worst year for the little bushy tails that I have ever seen.

There are explanations offered for the decline in squirrel population. The one you hear about the late freeze last spring ruining the food crop has validity. It is easily seen that there is a scarcity of food. I am inclined to believe that there are other well known reasons why squirrel population is down. One is the persistent out-of-season hunting which goes on from year to year. Some people seem to get special pleasure out of hunting before season. I guess they just have to be proving that they are "big men" and that the old game warden can't catch them.

Another reason I believe is killing large numbers of squirrels in legal season. I have heard stories - some of them true - that people have killed 20 to 30 squirrels in one day, and more. One guy told me once that he killed 32 and would have killed more, but he ran out of shells. Man, that ain't sport - that's ridiculous.

In 1957, at Thorn Spring Park, near Franklin, I came across the carcasses of 22 squirrels that someone had cleaned and then apparently decided they didn't want. So, they just threw them away. How's that for sportsmanship?

I greet with enthusiasm the recent story I read in the paper which states that people caught with squirrels, before season, can now be fined up to \$300.00 for each squirrel. I think that's a darn good idea, except that a 30-day jail sentence should be added to it.

Oh yes, if you're wondering, I killed 12 squirrels on opening day of season last year. Six of them were for a semi-invalid friend of mine who can no longer get into the woods to hunt, and the other six, I kept. The man's name is Guy Martin, of Brandywine, W.Va., in case you care to check out the story.

Man, we've got to do something to stop the mass hunting before season that goes on. I would propose that an all out effort be made by wardens to catch these people and that the local citizens (responsible ones) report at once all incidents of shotgun blasts they hear before season. It might help. Do what you can to prevent it. We need the squirrels. I sure hate to go through the winter without squirrel gravy and hot biscuits.

I killed a red fox on opening day this year - which might in some way contribute to growing squirrel population next year. I really didn't feel too badly about not getting any squirrels after I killed the fox. That's the second fox I've killed while squirrel hunting - and in both instances - the foxes were no more than 10 yards away. Either I'm awfully quiet in the woods, or those foxes were deaf and blind.

Several of us in the CV office expected to see a certain gun come over here after the drawing on the 14th. It seems you have to belong to the "Engineering Protective Association" in order to win. We asked for a refund of our donations, but decided that we would leave the money where it was. Our \$4 - we were told - is exactly what it costs for membership in the EPA.

Incidentally, if you don't like the preceeding story about out-of-season hunting, the least you can do is excuse me for messing up your shoe polish.

"Ruin and Rejuvenation"

by H. L.

Your Volkswagen goes, and goes, and goes,
until one day, the engine blows,
and when it does, you just lament,
next month's wages, already spent.

Why, just a couple of weeks ago,
I was cruising along, wasn't going slow,
when all of a sudden, I heard a sound,
like pieces of metal flying around.

Dumb, as I am, about machinery,
I poured it on, and didn't see,
that cloud of smoke, back there behind,
I must have been clear out of my mind.

But when I did, I shut her down,
and then a wide place, off the road I found,
and there I had to sit, and wait,
for the cloud of smoke, to dissipate.

Early next day, they towed her in,
and I watched the examination begin,
it started with a valve, a piston too,
then a cylinder wall, then a camshaft flew.

Next a cylinder head, then something more,
they poured those scraps, all over the floor,
Stop, Stop, that's all I need,
Put in a re-built, if its guaranteed.

They put it in, and I drove away,
and I heard that 4-cylinder engine say,
100,000 miles I'll go, and maybe more,
If you keep your lead foot, off the floor.

"Crow"

by H. L.

The old crow hunters, from a far away hill,
were shootin them crows, over field & rill.

Then up flew a bird, of a different kind,
and one of them shot him, in the behind.

They picked him up, a crow he was not,
and one of them thought he'd better not shot.

For they saw a man, with a gun on his hip,
walking towards them, he didn't get any lip.

One was scared, the other one more,
he thought that warden had him for sure.

Why didn't he look, further than he did,
If he had, he'd found that bird they hid.

When he completed his examination,
and walked away, there was exultation.

There was relief, on color-drained faces,
This warden didn't go to far away places.

But today, he did, and has proven again,
that you don't know where, and you never
know when.

Loose Ends

by R.L.S.

After reading a recent Observer, I am very pleased with the attitude of the NRAO employees. We are an inquisitive group, as was shown by the many questions asked in that issue, but this atmosphere of learning will be ruined if these questions go unanswered. In this light, and to prevent a feeling of insecurity due to unanswered questions, I will attempt to answer my fellow employees.

In order, yes, yes, no, yes, no, no, yes, yes, yes. But there is one more question, just as important as the others, which cannot be answered so simply and completely. It is a touchy subject and I was afraid it would eventually come up. But the only way to answer it is with the truth. YES (no, there's more...) yes, I believe there are both male and female telescopes. (In addition a neuter breed exists; for example, the calibration horn.)

Let me relate a few experiences I have had while working here. I don't sleep too well and have often gotten up at 3 or 4 in the morning (when, as everyone knows, all good telescope operators are really asleep on the job) and walked up a hill just to watch the night. Well, on a couple occasions I have seen 85-2 raise up off its track, roll over to the 300 foot, exchange feeds and return to its place. Shortly thereafter it rolls back to the 300, re-exchanges feeds and returns. Also, I was once talking to a 140 operator when strange utterances were heard over the audio monitor. Soon the 140 began to vibrate and the telescope moved by itself until it and the 300 were pointing right at each other. Having faith in the good uses of sex, I calmed the operator and told him to tell no one of this. In a few minutes both telescopes returned to their own observing program correctly.

Now I haven't gotten enough data for any definite conclusions, but I believe there are others who agree with me. For some reason

the 85's got their legs beautified and the 300 was given a little extra support in strategic places. But still the activities and the telescope's need for them is not explained. I have noticed a significant rise in the interferometer's total power and a slight baseline wandering on two of these occasions. There is also a high correlation between these occurrences and the appearance of quasi stellar objects on the observing program. Whether this indicates the position of the telescope is important or whether the type of signal it is receiving plays an important role, I cannot say.

While this is not a very good answer, there should be an excellent opportunity for study in this field in the future. The effects of freedom due to complete computer control (computers can be bribed) and the stimulus and competition resulting from three movable telescopes on the base should be very interesting.

In closing, let me say I hope I have been of some help and that I hope this healthy atmosphere of questioning continues.

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For Sale

A pair of 6.95 - 14, 4 ply Nylon Tubeless tires. U.S. Royal Winter-Ride (best of U.S. Royal), used only one winter and in good condition.

Contact: Susan Firth Atkinson
Computer Room
NRAO, Charlottesville

Computer Division
by Hitch

There has been quite a lot of activity in the Computer Division in the past month or so. In the October issue of the Observer I spoke of some components for our IBM 360/50 computer which had not yet arrived. Well, they arrived and the system was operational in good time. Arnold Valdmets returned from school in time to help put on the final touches. Good to have you back Arnold.

After working with the 360/50 for a couple of months it doesn't seem nearly as impossible as it did. I would even say the percentages are in our favor now - that is, about 70% of the time it does what we tell it to do and 30% of the time it tells us where to go. In spite of this, its operation has, without a doubt, shown it to be a significant contribution to the facilities at NRAO.

Everyone is wondering where the yellow went - that was the color of the back wall in the Computer Room. Would you believe it went under, under two coats of light gray paint. Quite an improvement I would say, and undoubtedly a professional job.

Another programmer has been added to the ranks of the Computer Division. Bertha Chen has been with us since the first of November and is doing a fine job. Welcome aboard, Bertha.

Another new face in the Computer Division is Anders Winnberg from Chalmers Institute of Technology, Gothenburg, Sweden. Chalmers has an IBM 360 computer on order and Anders is here studying our operation.

Excuse Please!
by H.L.

We ask that you who have contributed news for the Observer bear with us if the material printed in this issue (or some of it) appears to be out of date or not in the proper tense.

Some of the articles were contributed some time ago, but due to the extreme work load placed on Ron Monk and Gene Crist by the very important VLA Proposal, they were not put into our most recent issue. You will recall that that issue was a rather short one (one page to be exact) and that it was sort of a Merry Christmas and a Happy New Year issue.

So, bear with us, and though some of this issue seems old stuff, perhaps it will serve for beautiful memories of 1966 recalled, and remind you that you can now be looking for new material to submit for your Observer in 1967.

The VLA (Very Large Array)
by H.L.

What have you heard about the VLA? Have you heard statements like, "It will take up 9,000 acres of land", or "It will cost \$427 million", or "It will employ 300 people full-time."

If you've heard statements like this, forget them. They are far from the truth. True, the proposed VLA is big, but not that big.

The proposed VLA will consist of thirty-six 82 ft diameter antennas, arranged in an equiangular Wye configuration. Each arm of this Wye is to be 13 miles long. The antennas will be moveable on railroad track which will run the full length of each arm of the Wye. Movement of the antennas along the track, and positioning at observing stations, will be done by transport vehicles. Once the antennas are positioned, they will be computer controlled from a central location.

The proposed VLA will be located somewhere in the United States. The exact location has not been selected

Work on the VLA to date has involved a lot of time and effort by many people and includes the search for a suitable site, completion of contracts for studies of site development, antenna design, and the electronics system. Recently, we have completed the VLA Proposal for "the design, construction, and operation" of the VLA and presented it to the NSF. We anxiously await their evaluation and decisions.

As someone recently said or wrote, "We are at the end of the beginning of the VLA." We're looking forward to "the beginning of the end" and another successful accomplishment for NRAO.

Congratulations:
from D. Logan

To Omar Bowyer, who was recently placed in charge of the complete machine shop facilities for NRAO, replacing John Hungerbuhler who is now able to dedicate himself entirely to the Engineering Division. (In this case, Engineering means all but the Electronics Division.) In the event any of you can't seem to find all of the shop craftsmen and their wares, try the works area; it seems the interferometer group has started a new fad.

We are also very proud to announce that Mr. Bowyer (Dean Bowyer, if you will) has been instrumental in beginning an Electricity & Electronics program in the Green Bank High School under the Vocational Agriculture Division of the Pocahontas County school system. Instructors, material, and the opportunity, are being provided by NRAO. Mr. Fred Crews is one of the able instructors participating in this program along with Omar and it is my personal opinion that these men are certainly doing a fine, fine job. We will attempt to keep you informed of all future developments, but in the meantime if any one is interested in either obtaining additional details or in assisting, it would be wise to contact Mr. Omar Bowyer or Mr. Fred Crews.

Congratulations also to all of our new employees, who have joined the NRAO community. We offer congratulations as well as our welcome, because you have made what you probably will find to be a good decision in coming to the Observatory. We're sorry that we don't have all your names at this time, but we will try to obtain them. Incidentally, The Observer is ALWAYS eager to accept journalistic endeavors.

Dances, Parties & Just Fun

A Halloween Costume Dance opened the fall social season at Green Bank. It was, indeed, a gala affair. The "old timers" remarked that it was the best dance ever held at Green Bank, and the "rookies" said that this one was so nice they could hardly wait for the next one. So, you people who stayed at home missed out on the event of the year.

Thanks go to Connie Phillips and Janet Giordano, who toiled quite a few weeks to make this dance a success. Some of the decorations were traditional (corn stalks, pumpkins, spiders, weeping willows, etc.) but many were novel (stir stick holders made from a drilled out ear of corn and decorated cups). Neil Albaugh added his artistic touch with pictures of witches that were said to be the most horrible of horrible witches. A coffin had been planned, but it was thought that some of the more "lively" ones might decide to stretch out in it and close the lid.

The costumes certainly highlighted the occasion. Faye Reno, as a scarecrow, and Harry Wooddell, dressed as "the Gay 90's", (guess she got tired of everybody calling her Mr. Wooddell) captured the prizes for best costumes. And the prizes were most appropriate - a broom and a mop.

John Hungerbuhler, who planned to stay only a short time, got in the swing of things and entertained on the organ. Most think that organs are for solemn occasions, but you should have heard John! Woweee!

Everybody was "in" with the In-Crowd combo. The ghosts and goblins twisted and jerked until the wee hours.

Well, you party poopers, guess you missed a good one. Sorry about that chiefs.

Just a Light Boom - Not Blast

Don Logan arranged a nice little get-together for our Charlottesville group on Dec. 23rd, with 'nog and goodies. It was great and a real swell way to start the season.

Did It Have To End?

by Jimmie Ryder

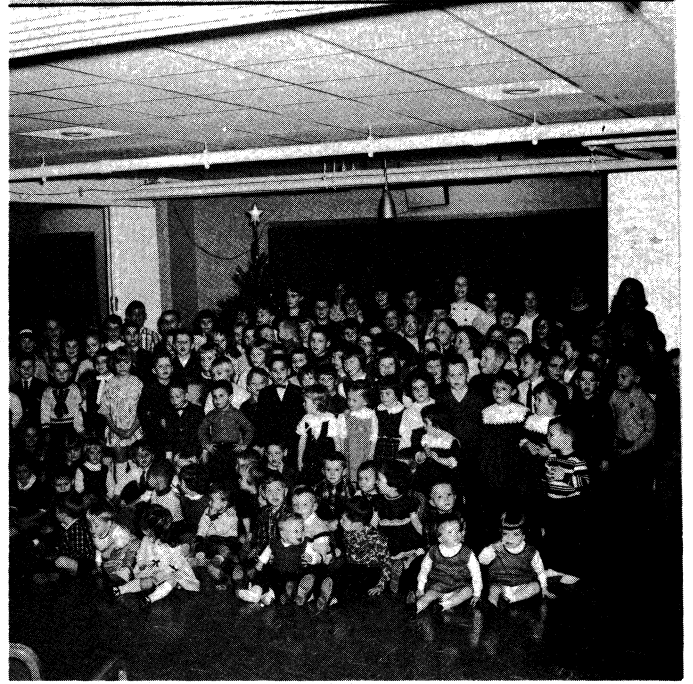
Well....., it's over....1966 is gone..., but not forgotten. For some, the last night was a memorable evening. For others it was a most enjoyable evening. This more or less describes the New Years Eve dance which was held at the NRAO, by the NRAORA in the conference room. The New Years Eve dance was a huge ??? success. I don't remember just exactly how many members and guests were present. I was sitting pretty close to the entrance, and it seems about this time of the year everybody wants to wish you a Happy New Year and expects you to have a toast with them for Auld Lang Syne's sake. Not having anything personal against Auld Lang Syne, I drank several toasts to him. Can you imagine a person sitting down, having a drink, jumping up, shaking hands with people entering the room, drinking a toast to Auld Lang Syne, then sitting down again to finish his drink. Now you try this for about 2 hours, then dance for 2 more hours, of course in between the dances you take a drink for yourself, jump up on your hands and shake people, and make some toast for Auld Lang Syne, then drink down again to finish your sit, you will understand why this is a short summary of the New Years Eve dance by somebody who enjoyed himself.

All joking aside, the New Years Eve dance was a wonderful dance, and since it is difficult to ask everyone who was present if they enjoyed it, I'll take it on myself to thank the NRAORA and the ones who made the evening possible, with the music, and decorations, and everything that made this the mostest.

Happy New Year to you and everybody.

For the Kiddies

There were Christmas parties (with Santa) at Green Bank and Charlottesville. The Green Bank party was held on Dec. 18 from 2:00 to 5:00 p.m. The Charlottesville party was held on Dec. 21 from 5:00 to 6:30 p.m. The kiddies, Santa, and all the grown-ups had a marvelous time.



SANTA COMES TO NRAO



by Don Logan

Those of you who occasionally take to the air have probably noticed that our own "Air-drome of the Hills" is now back in service.

After a complete face lifting and re-surfacing, the runway was opened to air traffic just prior to Christmas. The 50 x 3500 foot strip is available only for NRAO business, but in a few circumstances may be used privately by employees, but only after previous permission. I can think of one other use for the Black Top that fails to qualify under the heading of aviation, but this is not recommended; Jim, Roy, Neil!

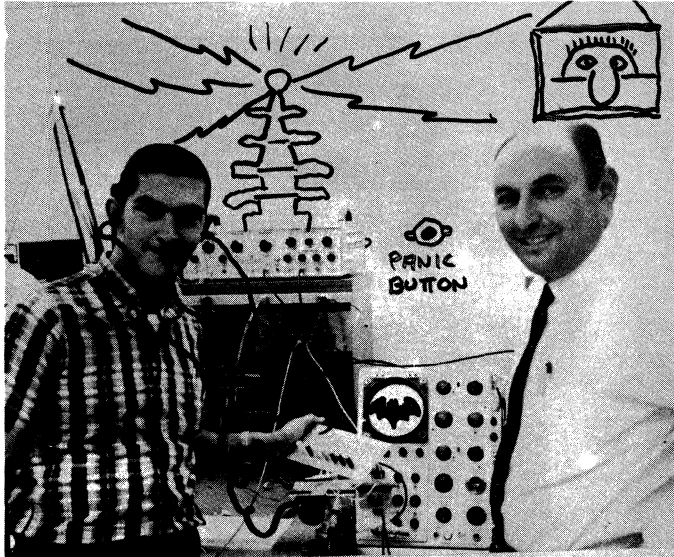
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Since we're talking about flying, I suppose it's appropriate to give a sketchy rundown on one of our other "grounded" facilities, not yet on the air. But of course; the 36' telescope.

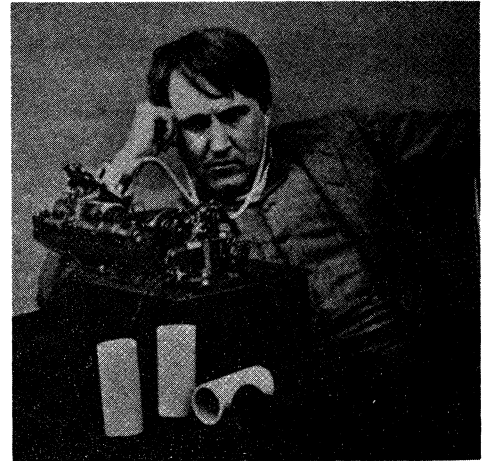
This tiny ton of trouble is located on top of Kitt Peak Mountain, in a Papago Indian Reservation, 60 miles from Tucson, Arizona; this much we're sure of. The construction phase is complete, and the electronics (let's hear it for Millimeter Lab) are ready. But the delay is apparently due to problems with the drive system, and other electro mechanical phenomena. The telescope should be the first of NRAO's assortment of observing instruments to be pointed by an on line computer, and just in case any of you telescope operators are worried that you may be replaced by a digital demon, don't be. From what we can see, you're in no immediate danger.

So until Neil and I return from Tucson, we leave you with these thoughts:
Ugh - - - How!

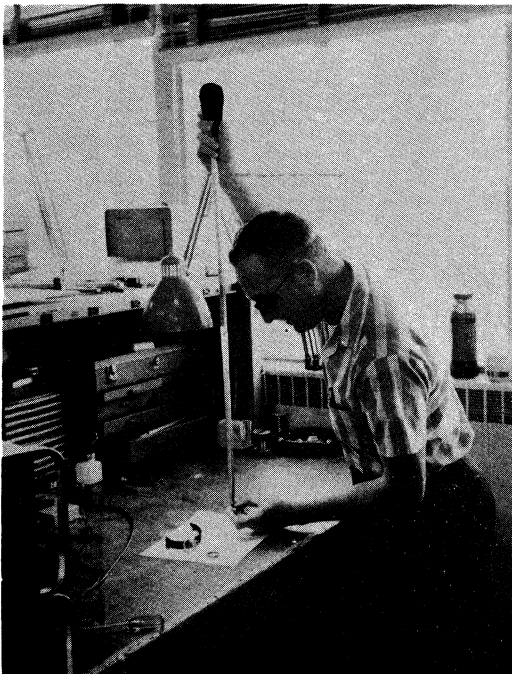
THE "ONE PICTURE IS WORTH" DEPARTMENT.



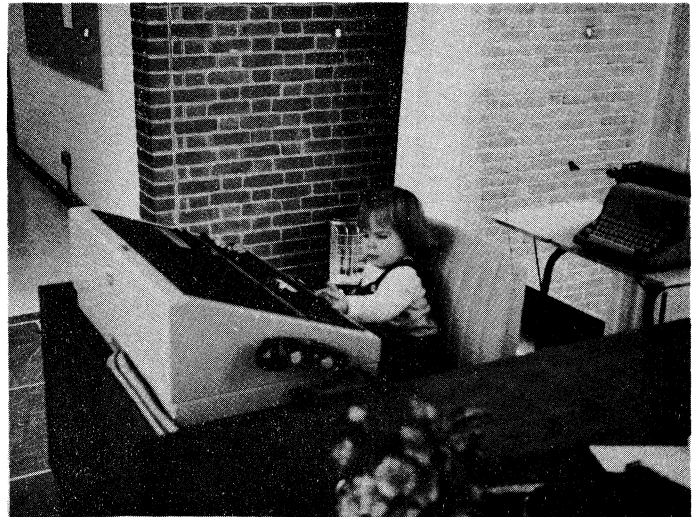
... GEE, ART, WHEN YOU TOLD US RAY CAME FROM ACME INC., WE THOUGHT YOU MEANT HE USED TO WORK THERE !!!



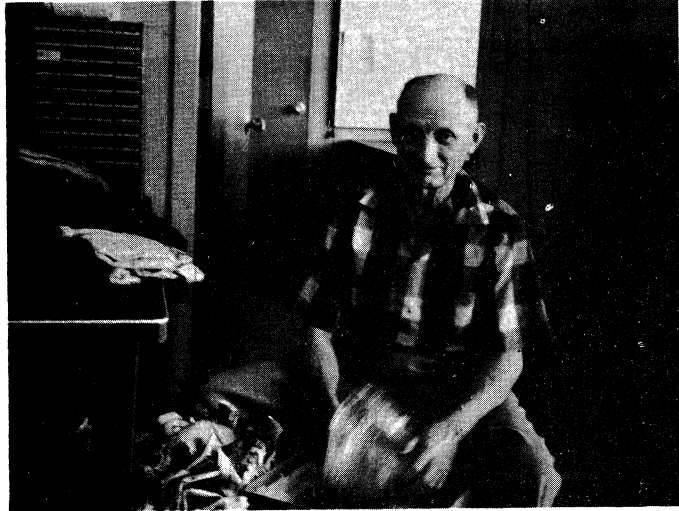
DON'T TAKE IT SO HARD, JIM, WE'LL FIND YOU A NEW CATSWISKER SOMEWHERE!



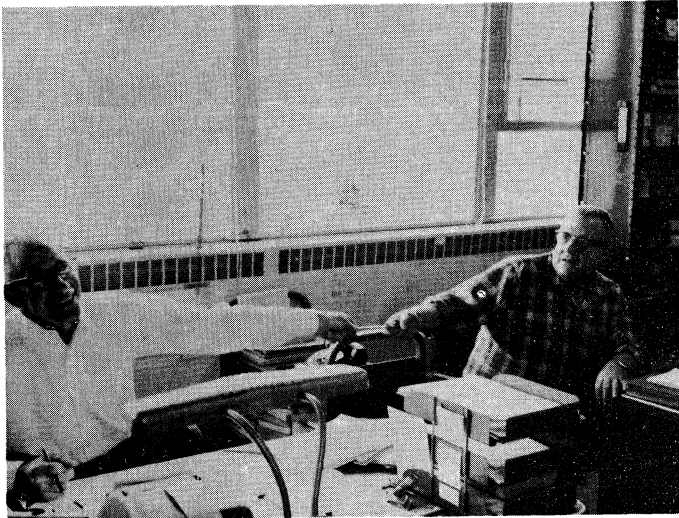
AH! HERE IT IS: THE MAINSPRING SLIPPED OFF THE REDASSICATOR, CAUSING AN 18 KARAT FOUL-UP.



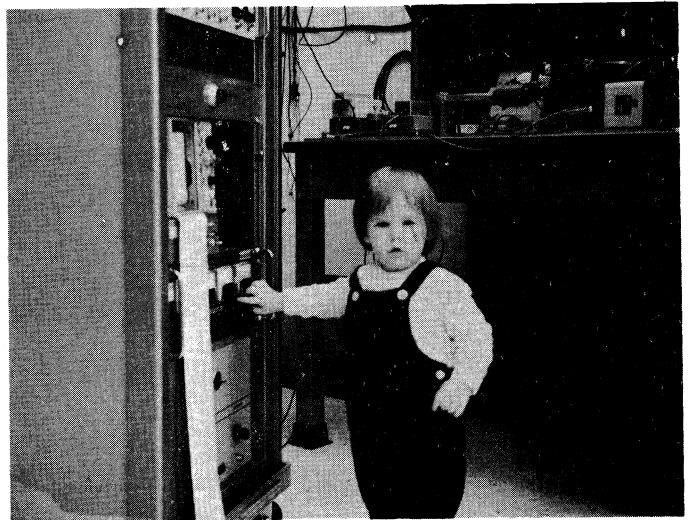
... GOOD MOWNING; NASHUNAL WADIO ASTWONMY ZERBATORY.



... 9'S THE POINT. NOVATER, DRAKE,
AND WOODELL'S CHECKS SAY I MAKE
9.

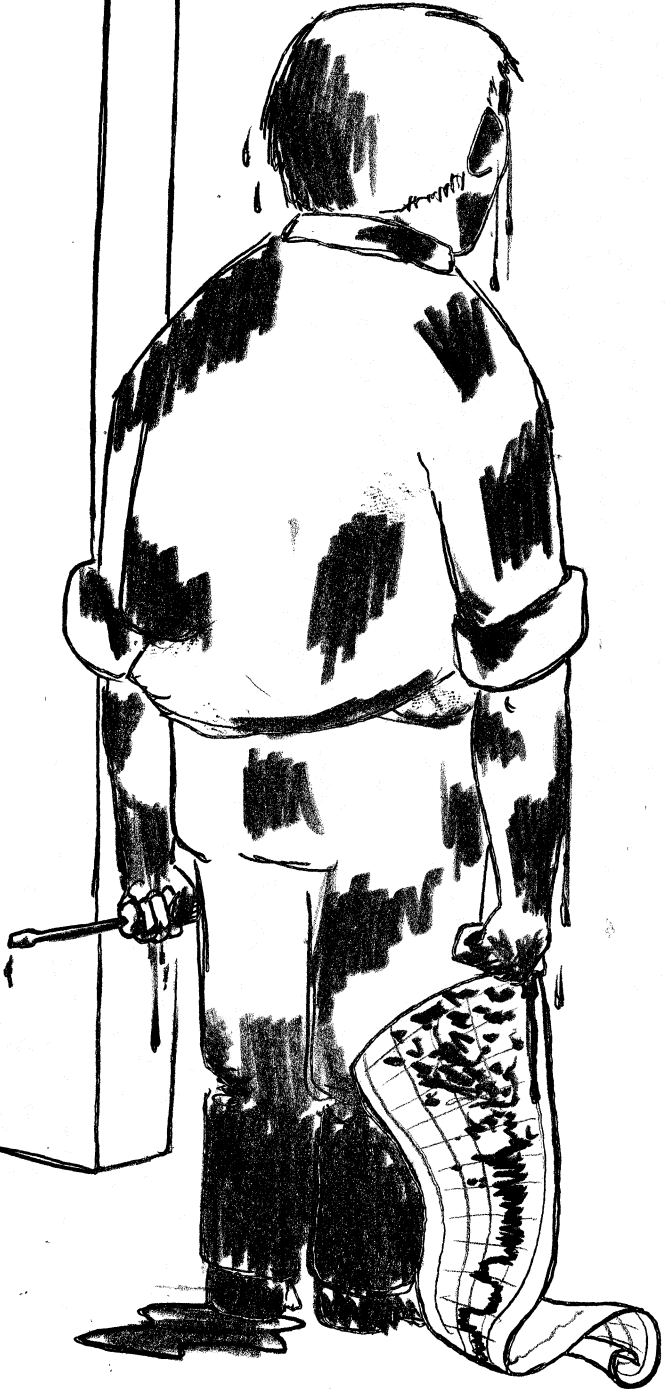


COM' ON, CARL, YOU CAN'T
HAVE ALL THE FUN. NOW
I TOLD YOU, I WANNA
PASS OUT THE SCREWDRIVERS.



YEAH?! ... WELL 36 FOOT
IS PRETTY SMALL TO BE A
RADIO TELESCOPE!!.

The chart recorder quit again



ALRAUGH