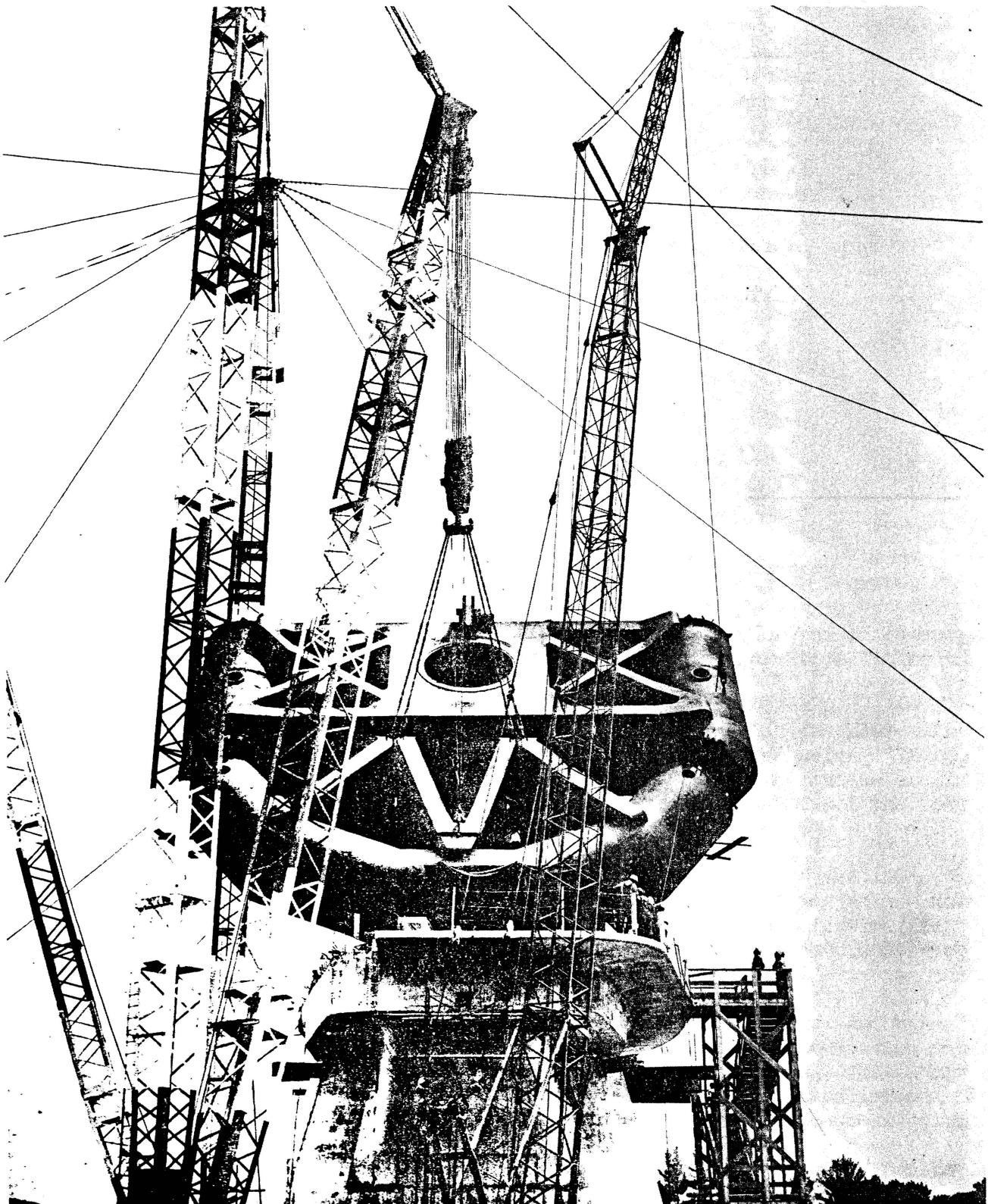


The OBSERVER

Vol. 3, No. 8

June 30, 1964



140' YOKE/HUB ASSEMBLY LIFT

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YOKE/HUB ASSEMBLY LIFT - 140' TELESCOPE

by
Howard Lambert

We want to keep up your interest in the 140' so here we are for the third successive month on the Observer cover. We hope to be there a few more times in months to come.

During the past five weeks, three major lifts have been made at the 140'. The first one was of the assembled polar shaft and spherical bearing and weighed 385 tons. The last one was the counterweight section and weighed 110 tons. The one we are interested in telling you about in this issue of the Observer is the lift of the yoke/hub assembly.

The yoke/hub assembly lift was the heaviest which will be made at the 140'. Its brute size and weight (479 tones) made it, perhaps, the most critical as well. Movement of this lift was made very carefully and slowly and some bystanders were disappointed that it took so long to complete. This job is one in which haste could certainly make waste, so, you just don't hurry along.

The yoke/hub assembly, at the end of the lift, was aligned and lead onto the north face of the spherical bearing by four tapered temporary dowels. This operation required very small movements of this 479 ton load and we would like to point out that even though this lift was so heavy, the derricks here at the 140' are capable of handling and moving a load of this size only fractions of an inch if movements of this size are required.

The assembly has now been bolted to the spherical bearing by 28 - 5-1/4" diameter bolts and everything looks good.

Again, they are off the ground, on the building, and we are still going strong.

RECREATION AREA - HANNAH HOUSE

The Recreation Area at the Hannah house is now open five days a week, Wednesday through Sunday, from 11 A.M. to 7:30 P.M., with Mr. Adolphus Shears as "over-seer". Mr. Shears is there to put out the equipment, help keep the grounds in order, sale of miscellaneous sporting items, etc.

NRAORA members are permitted to drive golf balls without any charge. Family members also have this privilege. Any NRAORA member may bring guests to participate in any sports. Family members do not have this privilege. For guests the cost of the golf balls are as follows:

1 bucket 35 balls	35¢
1 bucket 50 balls	50¢

Each member is required to sign his name to a charge ticket when guests use the golf driving range facilities.

NRAORA has only a few tennis rackets for the use of its members. These are not to be taken from the Recreation Area. Anyone wishing to purchase their own tennis racket (or other sporting equipment) may do so through the NRAORA.

FOE or FAWN? By Peter B. Good

The dogs were closing in. The whites of their teeth were even apparent at 100 yards. They could almost taste the blood of the baby fawn. The 5 day old fawn had been separated from his mother and had wandered hopelessly in search of help. But, now, the fawn had met up with a foe. He just didn't have the strength or stamina to fight. All hope was gone. Just as hope was fading, on the scene appeared Jim Hevener, a guard for the NRAO. Jim was making one of his routine rounds near the Hannah House and had spotted the fawn's dilemma.

And so it came to pass; the Observatory had adopted this small, frightened fawn. The fawn was taken to the guard shack where he would stay until plans could be made to decide his future. In the 24 hours that

he lived in the guard shack, it is estimated by Paul Devlin, Chief of Police for the NRAO, that at least 300 people had visited the fawn in that period of time.

Permission was received from the Pocahontas County Game Warden that the fawn could be kept. The job of feeding and caring for the cute animal was given to Larry Wooddell, the son of Harry. Until it can gain strength, the fawn will remain at Gerald Wooddell's home, in Green Bank. After that, the fawn will be returned to the Observatory and kept near the Hannah House, until it will be old enough to be set free.

We welcome suggested names for the fawn. Please submit names to Paul Devlin. The name that is selected will appear in next month's Observer.

BIOGRAPHY OF THE MONTH

Mr. T. Williams received an appointment as a Mechanical Engineer at the Observatory in December, 1962. In May of this year he was appointed Head of the Plant Maintenance Division.

Immediately prior to his association with the Observatory, he, Mrs. Williams, and their youngest daughter, spent eighteen months in Pakistan with Mr. Williams serving under a private sub-contract with the United States A.I.D. program as Factory Maintenance Advisor.

His earlier experience has been in design, construction, and maintenance fields, with several well known industrial organizations. He was associated with Kennecott Copper Corporation in process development and plant planning for a facility to produce Titanium. He was Chief Engineer for Armour Laboratories Division of Armour & Co., of a plant constructed south of Chicago for

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the production of ethical pharmaceuticals. He was associated with the General Electric Company who continue to operate the U. S. Government Atomic Energy facilities at Richland, Washington. He spent twelve years with the du Pont Company at their facilities in Charleston, West Virginia.

Mr. Williams is a native of New Castle, Pennsylvania, located just north of Pittsburgh and received his degree in Mechanical Engineering and pursued graduate study at the University of Pittsburgh. He is a registered Professional Engineer in West Virginia.

Mr. and Mrs. Williams have three daughters and one grandson. The eldest, Marcia, is located in Illinois, the second, Carole, in New Jersey, and the youngest, Dianne, is currently attending Converse College, at Spartanburg, South Carolina.

TIME CHANGES EVERYTHING?

The Elkins INTER-MOUNTAIN rarely carries poetry from its readers but we think the following to be of unusual interest. It was authored by a West Virginian in Akron, Ohio.

"WEST VIRGINIA"

West Virginia! the state I was born in,
The best little state on the map,
Where outsiders like so to "horn" in,
And gather its wealth in their lap.

But many outside of our borders,
Ever make it the butt of abuse,
And call it a place of disorders,
Where hundreds of wild men are loose.

We get lots of free advertising,
When two little "kids" have a "scrap"
Before there's another sun rising,
It's published all over the map.

There are some of the ignorant classes,
Not a hundred miles from our state,
Who think all of our roads are just "passes"
Where robbers are lying in wait.

They think we are living in jungles,
That we are low-minded and rude,
That all of our efforts are bungles,
And all our implements crude.

They think that we men are all "grubbers"
They call us "hill billies" and "snakes"
They think all of our women "snuff rubbers"
And the men folk nothing but rakes.

They laugh at our "you all" and "yander"
I "reckon" and I "calculate",
And it always gets up in my "dander",
To have them belittle our state.

We acknowledge to our old fashions,
We never turn strangers away,
"If you can put up with our rations,
I "reckon you are welcome to stay."

We have great natural resources,
No wonder they covet our wealth,
And thousands of people endorse,
Our summer resorts for their health.

We are proud of our schools and our churches,
And our numerous state institutions,
And in scientific research,
We give the world contributions.

But to you in the states that are level,
Who care for only yourself,
"YOU ALL" can go to the d___l,
This state will take care of itself.

(Editor's Note: Not a masterpiece? We didn't say it was. But the poem above was authored by a West Virginian living in Akron, Ohio, on March 13, 1924 . . . yes, that's right, 40 years ago. My, how times change . . . or do they?)

NRAORA PICNIC

At 1 o'clock, Saturday afternoon, July 18, 1964, the second picnic for Association members and their family-members will be held at the Recreation Area at the Hannah House. Again, this venture is being sponsored by the Association from dues money. The food will be prepared in advance and

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served buffet style. Games and prizes will be planned prior to the date.

Guests may be brought by employee-members provided tickets are bought prior to July 8, 1964. This date is necessary so that the quantity of food needed can be determined for preparation. Guest tickets will be: Adults - \$1.00; Children (under 12) - 50¢. Tickets may be obtained from Bob Vance, Room 212 - A of the Lab Building.

We are encouraging the bringing of your Recreation Association Membership cards for presentation, if necessary.

Make plans for attending this function and join in the activities for this afternoon. Ye all come and have a good time.

140' TELESCOPE

What do you write about when everyone knows what's going on anyway?

Well, in case there are some things you don't know, we'll try to bring you up to date.

Mr. Greenwood has a new station wagon - a beaut. He says that his old one wouldn't pass a gas station but that it would pass everything else on the road. This one passes everything including gas stations - around 20 mpg is a pretty good figure for a car of its size with a V8 engine.

Howard Brown is away on a fishing trip. He'll probably come back and say nothing got away. That would be a switch wouldn't it?

John Ralston says he has completed his cellar. We think Mary probably did most of the work. He won't admit it.

Brown Cassell made a trip to Bethlehem Steel Company during the month to pick up some material for the 140'. Merritt Gum had taken this material there for us to have some repairs made.

We knew a young engineer at Sugar Grove who enrolled in a class in Astronomy at Madison

College, in Harrisonburg, Virginia. He explained that he wanted to watch those "heavenly bodies" move around. It seems that some NRAO employees are doing that now - not in astronomy either.

Howard Lambert is interested in selling or renting a nice home in Franklin, West Virginia, to anyone who would like to break his monotonous routine of everyday life by driving 102 miles to and from work. Anyone interested?

Seriously, Howard is interested in renting a place in close proximity to the Observatory - three bedrooms required - unfurnished - good central heating system, etc. He will appreciate hearing from anyone who knows of places for rent in the vicinity of Green Bank.

D. R. Warren, Welding Supervisor for S&W, completed his assignment at the 140' on June 19. He will go to Boston for re-assignment.

Bill Horne and John Echternach, of the Engineering Division, are assigned to the 140' at this time. We welcome both of them.

300' TELESCOPE

As you may have noticed these last few days, the 300' scope is casting a more brilliant surface in the sunlight. Under contract with the Spanoas Paint Company, of Baltimore, the scope is receiving its final touchup of paint this week. The painters have had their share of bad luck too, when they rolled their car off Route 28 at Boyer. Fortunately, they only received minor injuries. Another painter upset 10 gallons of kerosene in his car while chasing a ground hog around the 300'. The paint was late arriving, but they may still finish by the proposed date.

There was a few minutes of excitement last week when a canvas hanging outside the control building was ignited by a flood light.

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Thanks to quick action from Dr. Westerhout and Bill Terrell, who pulled down the canvas and extinguished the fire. There was only minor damage to the building surface and wires shorted in the flood light.

In the meantime, observing continues with the Autocorrelation Receiver during the night hours. A front end receiver has been installed with a dual Parametric Amplifier which checked out to about 135°K for the system. This is quite an improvement over the single Parametric Amplifier which was removed.

We wish to welcome Dr. Westerhout and his family from the University of Maryland, who have moved into the housing area recently. Dr. Westerhout has much interest in the Autocorrelation Receiver and we expect to do quite a few of his programs this summer.

SMALL TALK

Bob Viers, Dick Spurlock, and Bill Terrell agree that the scope looks much better painted, but it didn't help the looks of their cars. Wonder whyThey say Bob Viers sold his farm and bought a horse. He says he may just start with the Kentucky Derby and not try for the Triple Crown at first.....Ray Walker spent two days fishing the Greenbrier and only got a sunburn and a few undersized bass.....Tom Hawkins is now working all three scopes for fill-in during the vacation rush. Wonder how he will make out in August, when he has to work midnight at the 300' and at the 85-2 the same night. Quite a problem.....Our school teacher, Harold Crist, is now working a shift at the 300'.

SUMMER STUDENTS

There are 12 undergraduate students and 7 graduate students spending the summer at the Observatory under the undergraduate and graduate student programs. They are working with scientists and engineers on various problems.

Hugh Aller is a graduate student from the University of Michigan, and is working for Dr. Howard. He is an astronomy major.

Mark Fagerlin, whose major is physics and astronomy, is from the University of Florida. This is his second summer at the Observatory.

Virginia Fagerlin, wife of Mark Fagerlin, is an undergraduate student from the University of North Carolina, and is working with Dr. Hoglund.

Margo Friedel is a graduate student from the University of Michigan, majoring in astronomy. She is working with Dr. Wade.

Dennis Baker is a graduate student from the University of California, majoring in astronomy. He is working for Dr. Roberts.

William Gebel, an astronomy major, is working with Dr. Hogg. He is a graduate student from the University of Wisconsin.

Lloyd Walker, a physics major from the University of Chicago, is working with Dr. von Hoerner on some theoretical problems in cosmology.

Norman Savin, a graduate student from M.I.T., majoring in physics and astronomy, is working with Dr. Mezger.

Greg Burrowes, an undergraduate physics major from the University of Maryland, is working with Dr. Mezger.

Francis Wells, an undergraduate electrical engineering major, from Vanderbilt University is working with Dr. Hvatum.

Mary Meacham is working with Dr. Menon. She is an undergraduate physics major at Notre Dame College.

Martin Ewing, an undergraduate physics major from Swarthmore College, is working with Dr. Menon.

Philip Atanmo, an undergraduate majoring

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in physics and electrical engineering, is working with Dr. Hvatum. He is from the University of Connecticut.

Melvyn Viner, an undergraduate astronomy major from the University of Toronto, is working with Dr. Pauliny-Toth.

June Myles, an undergraduate majoring in physics at Hollins College, is working with Dr. Hogg on reductions in the phase measurement project.

Edward Conklin, an undergraduate electrical engineering major from Yale is working with Dr. Hvatum.

William Ogden, an undergraduate from the University of Kentucky, is working in the computer group under the direction of Dr. Howard.

Robert Havlen, an undergraduate physics major from the University of Rochester, is working with Dr. Roberts.

Joseph Marshall, an undergraduate from Potomac State, is working with Dr. Hvatum.

STUDENTS! WELCOME TO THE NRAO

BUSINESS MANAGEMENT

Brown, Bell, and John Cassell ventured to the big city of Baltimore, Maryland, the weekend of June 19, to see the Boston Red Sox vs Baltimore Orioles baseball game.

Jane Kay Michael, daughter of Mrs. James "Sis" Michael, after completing her junior year at West Virginia University went to Wildwood, New Jersey, to work for the summer.

Carl Kuehnert was in Charleston over the weekend. His wife returned to their home after being a patient at the Kanawha Valley Hospital.

Norma and Dick Brockway purchased a new 50 x 10 house trailer and are now living in it at Bartow.

Everyone is invited over to visit Tom and Shirley Carpenter and enjoy the music from their new stereo. (Shirley says you can't sit on it though). It is a luxurious piece of furniture with leathered cushions and such.

MAINTENANCE

Mrs. Connie Phillips is spending a well earned vacation in Charleston this week.

Merritt Gum is at Langley Air Force Base picking up surplus equipment.

Automotive maintenance group is cooperating with Mike Waslo in suppressing radio interference caused by automotive equipment on the site.

Basil Gumm is the proud father of a 7 lb 5 oz baby boy. The youngster has been named Billy Joe.

The effects of heavy traffic and the winter weather have caused damage to the Hosterman road and presently repairs are being made.

Progress is being made on the design of the building at Charlottesville. Preliminary plans have been approved by AUI and University authorities. Working drawings are now being prepared by the architectural firm of Tippetts-Abbott-McCarthy-Stratton, of New York.

Tom Williams has moved his office from the Engineering section to the Maintenance area. If you want to contact him use his original telephone number.

WE WOULD LIKE TO WELCOME NEWCOMERS

William E. Howard, III	Director's Office
Harold L. Crist	Telescope Operations
William L. Sheets	Engineering
Michael D. Coleman	Engineering
Jessee A. Jordan	Plant Maintenance
Adolphus T. Shears	Plant Maint. (Rec. Area)
Nadine M. Gillispie	Visitor Receptionist

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Charles R. Rightmire	Public Education
Grover L. Barkley	Bus Driver
William F. Lovelace	Bus Driver
John E. Patterson	Plant Maintenance
David J. Cain	Plant Maintenance
Roland von Hoerner	Plant Maintenance
Dharl McLaughlin	Central Mach.Shop
Larry J. Chestnut	Central Mach.Shop
Gary J. Fream	Co-op. Drexel
Don Haxton	Computer Group

schedule.

What happened after that is the usual description of who wore what and went where. If you really care to hear about that and our short trip to Washington, D. C., drop over for a cup of coffee and my wife will be happy to tell you all about it.

Gragg - Jones

On Friday, May 29, 1964, Miss Ruby Carolyn Jones, daughter of Mr. and Mrs. Jess W. Jones, of Big Springs, and Ben A. Gragg, son of Mr. and Mrs. Glenn Gragg, of Durbin, were married at Big Springs.

The new Mrs. Gragg, a graduate of Calhoun County High School, was graduated cum laude with the 1964 class of Glenville State College. She has accepted the position of Home Economics teacher at Green Bank High School.

The groom is a graduate of Green Bank High School and attended Potomac State College. He is employed at the NRAO as a guard.

Cup of Coffee Anyone?

Being a society editor and writing about weddings is no easy task - especially when the wedding is your own. The problem arises in deciding whether to make light of the affair in an interesting article and risk the current domestic tranquility or write in all seriousness and sincerity and bore the readers of ten nations. Sorry, readers. You lose.

The date was May 29, 1964, when people from California, Florida, and Washington converged on Chapel Hill, North Carolina, (a compromise location) to watch Virginia Baldwin change her name to Fagerline. For a while the groom, with the help of the State of North Carolina, cunningly avoided getting the marriage license and it looked as though there would be no ceremony. But, five hours before the specified time all barriers were removed and we proceeded on

LAB GAB

The 20 channel receiver has been brought out of mothballs and Carl Cooper has extensively modified it. The receiver is scheduled to be installed on the 300' telescope soon for Dr. Roberts. Low-noise lab will furnish the front end; a sophisticated parametric amplifier system.

Dewey Ross has been reported ill with pneumonia but is expected to return to work shortly.

Jim Ware has returned from a one week Hewlett-Packard test equipment school in High Point, North Carolina.

Our Intestinal Fortitude and Incredible Stamina Award this month goes to C. Bare and R. Cooper for single-handedly facing 6 meter QRM during a VHF contest on Bald Knob (elevation 4800 ft).

It works. The first fringes were received on 6/21/64 from 3C273. Several other sources have also been received with success. The 85-1 has been very stable but some trouble has been experienced in the 85-2 installation due to motor interference and drift.

Skaggs and Oliver go to Digital! Don't panic, Carl, it's only for two weeks or so. Receiver section claims to be saving a sinking ship (digital).

Digital section has completed a magnetic tape scanner, a new D.I.T., and the digital readout for the 85-2.

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The auto-correlation receiver is scheduled to be removed from the 300' shortly after operating successfully for a month.

The digital output system for the multi-filter receiver is nearing completion.

Rama Menon has joined the Mezger organization. She will do work in millimeter waves.

Receiver section claims to be saving a sinking ship (digital).

For Sale: Foam Pelletts. Good for.....uh... let's see.....hmmmm.....call W. K. 456-4477.

ENGINEERING ESSENCE

85-2/1 Interferometer:

Mr. B. Sholtenbrand from Blaw-Knox arrived on site to perform various repair jobs on the telescope.

- a) Checked polar shaft bearing seal and repacked.
- b) 26 outer panels were reinforced and repaired.
- c) Center panel was corrected.

Also the telescope was completely lifted off its pads and moved 4'-6" on the concrete pads, then returned and settled.

Coaxial Cable

Bayliss and Ramey, Contractor, completed their contract on laying of coaxial cable in ditch.

AUI personnel completed installation into 85-1 building and up the telescopes.

Observatory Machine Shop fabricated and installed all the insulated cable trays to carry coaxial cable.

Electric Shop completed installation of transformers and power wiring for coaxial cable stations. Electronics trailer was also completed with lights and air condition.

Encoders 85-2

Engineering and Observatory Machine Shop revised design of encoder coupling on 85-2 due to realignment of overarm to structure. Subsequent tests proved correction was in right direction and temporarily adequate.

Additional design will be included when making the necessary couplings for the encoder installation on 85-1.

Subsequent tests will prove the one or other method, and the better will be used on both telescopes.

4160 V. Power

Bayliss and Ramey contractors completed the installation of the 4160 volt power cable run from station II to VI.

Construction

All concrete work on pads, foundations, etc., is completed. Roadways completely leveled - fine graded to station II - fine grade and tar between stations II to VI to be completed by July 10, 1964.

Electrical

Completed grounding of cable tray for full length. Power and signal cable installation and connection completed and in service.

General

2 each 18,000 B.T.U. air conditioners ordered for 85-2 control room, - to be delivered by June 30, 1964.

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140' Project:

W. Horne assigned to 140' project for an indefinite period in order to compute and double check structural and hydraulic systems at various stages.

J. Echternach assigned to 140' project for an indefinite period in order to assist J. Ralston in his work.

Foundations for test panels and chiller condenser poured and completed under supervision of S. C. Smith.

Engineering is designing the shaft housing for the 140'. Design of jack screw modification for panel test site completed.

Observatory Machine Shop has finished fabricating jack screw modification as per design. 440v. transformer shorted out, was removed and sent to be rewound.

300' Telescope:

Painting was contracted to Spanos Company and started on June 8. Presently proceeding on schedule, and is to be terminated by June 28.

South side ladder supports installed and presently awaiting delivery of ladder to complete the job.

Oil rack is finished and awaiting maintenance carpenters to be completed.

General maintenance of this telescope's components completed, including transformers, breakers and switches, etc.

Airstrip:

Field is in good condition and with present fiscal status completed. It is in use at various times and under various conditions with no apparent complications.

Jansky Antenna:

It has been connected electrically, and completed. At present one of the tire-tubes is on order for delivery within the next 10 days.

Works Area Parking:

Drawings and engineering completed on revised works area parking.

Co-op Students:

Robert Johnson, a Drexel Co-op student, has completed his assignment, and left Green Bank on June 19, 1964.

John Echternach will remain with us until September 15, 1964.

Summer Students:

Two summer students were employed as of June 1, 1964, as Junior Draftsmen, William Sheets, Jr., as mechanical, and Michael Coleman, as electrical draftsman. They will remain with us until September 15, 1964.

BUT SERIOUSLY by Snodgrass column

will not be heard from this month, but will appear again in the next issue.

FOR SALE

22 Automatic W/K4 Weaver scope. Trade Citizen Bank radio. Contact Herb Hanes.

ROSE BUG CONTROL

Around Green Bank an annual pest methodically devours fruit trees, shade trees, grapes, and ornamentals.

When these annual pests invade your yard or orchard, you soon become aware of their presence. Tree leaves and fruit begin to disappear quite rapidly. It is not uncommon to count 25 bugs eating on a single fruit. This menace, $3/8$ to $1/2$ inch long, tan, six legged, and winged, is the Rose Bug. Rose Bugs are at the height of destructive activity around June 15 of the year.

Fortunately, control of this pest is not difficult; however, repeated spraying or dusting is very important. Beetles which are sprayed or dusted will die, but still others will move in from nearby areas. When this happens, spray or dust again.

Use one of the following combinations:
Vegetable Gardens and Grapes - Spray Methoxyclor wettable powder 3 tablespoons plus 1 tablespoon of 50 percent Emulsion Concentrate (enough to make 25 gallons can be purchased for about \$1.20). If a dust is preferred, use one containing Malathion and Methoxyclor. For ornamentals, a 50 percent wettable DDT.

Perhaps it is too late to save your trees and fruit this year, but you can be ready to wage war with them next year.

OBSERVATORY TOURS HAVE BEGUN

The tourist season got off to a big start. On the first day, June 17, a record breaking crowd of 147 people took the tour. For the week of June 17-21, a total of 563 tourists registered at the reception desk. In contrast, last year, only 284 visitors registered the first week representing ten states. This year 20 states were represented the first week.

The tours begin in the auditorium of Green Bank High School. The tours are held on Wednesday through Sunday, at 1:30 and 3:30 in the afternoon. The tours include a short lecture on radio astronomy, slides of all of the telescopes, and a bus tour of the principal telescopes.

The task force for the summer tours include: Wally Oref, the "old timer"; and four new recruits, Nadine Gillispie, receptionist; Charles Rightmire, assistant lecturer; and Grover Barkley and Bill Lovelace, bus drivers. By the end of the summer the new recruits will be battle scarred veterans of public relations.

P. S. Contrary to popular belief, the NRAO tour personnel is not attending summer school.

KITTENS

Long haired beautiful Persian kittens. One week old. Contact von Hoerners.

“

Shane

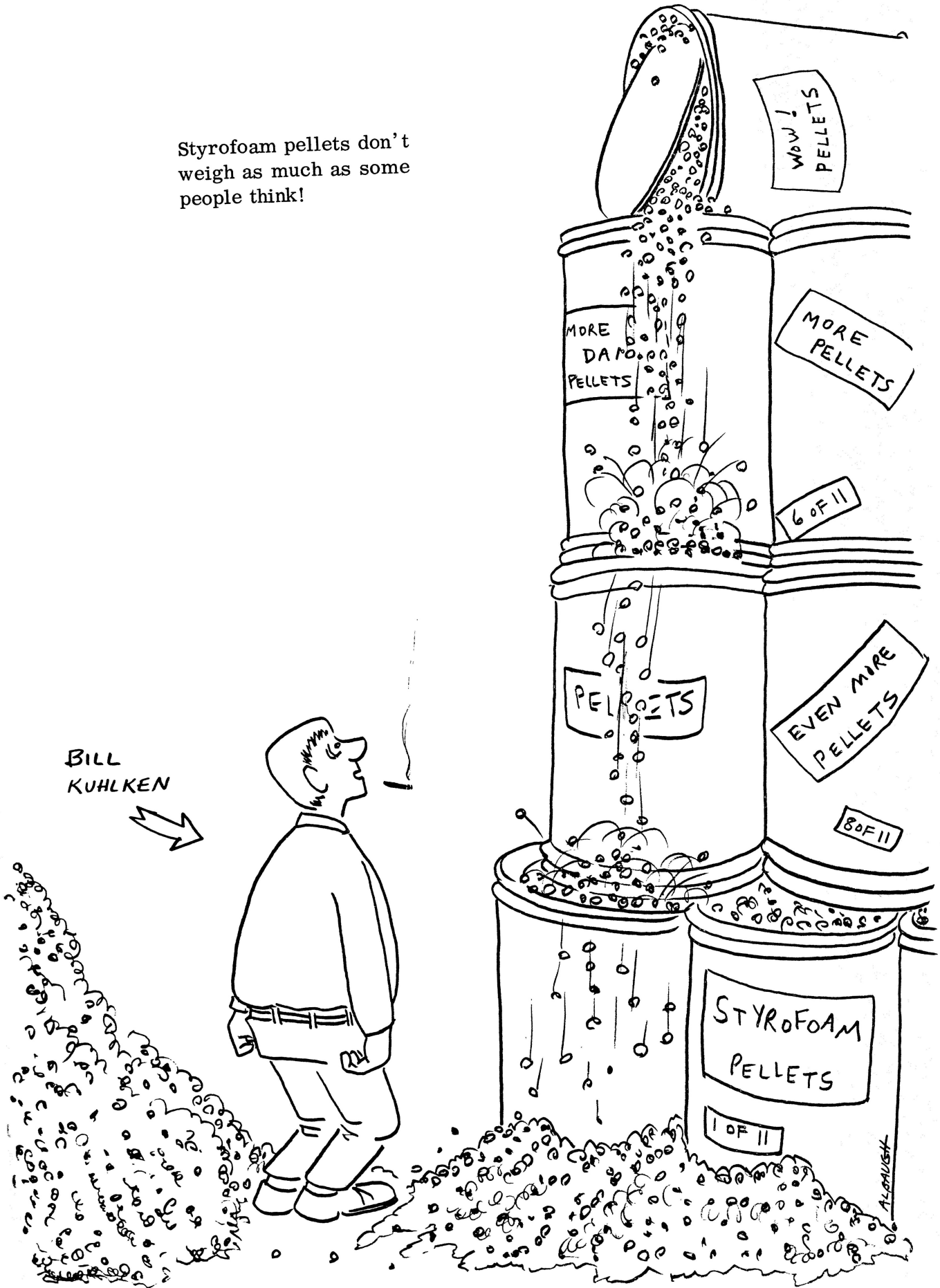
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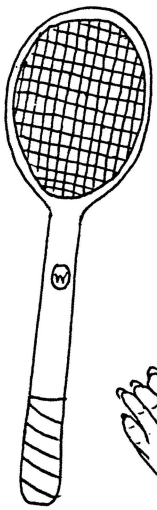
ALAN
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JULY 13

8:00 P.M.

Styrofoam pellets don't weigh as much as some people think!





Peter's good

