

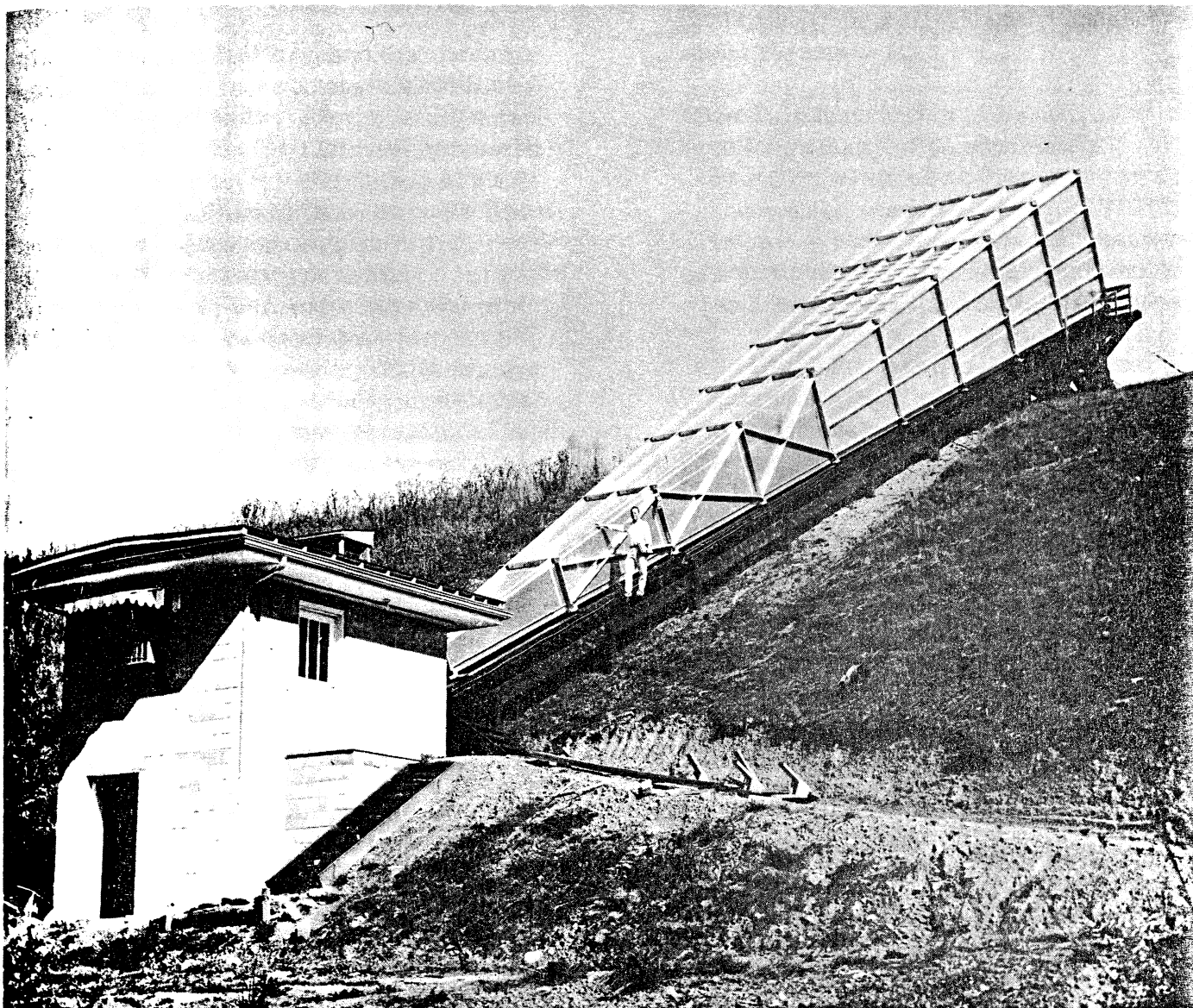
The O B S E R V E R

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CALIBRATION HORN

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The Calibration Horn, better known as the Little Big Horn, was designed by Dr. John Findlay and constructed by the Plant Maintenance Division in 1959.

The horn is 120 feet long and the aperture at the upper end is a rectangle 13 feet by 17 1/2 feet, while at the lower end it is approximately 3 inches by 6 inches (standard L-band waveguide). It is inclined at an angle of 30° and fixed in a position so that it can observe and measure accurately, once each day, the intensity of the incoming radio waves from the radio source in Cassiopeia. This source was chosen because it is the strongest source in the sky, with the exception of the sun, and is visible throughout the entire Northern Hemisphere and is believed to be extremely constant from year to year. It transits approximately 4 minutes earlier each day and completes its transit through the horn in approximately 50 minutes.

The design of the horn is such that the collected power can be calculated precisely from its dimensions, therefore providing other telescopes with a standard of measurement.

While this is the primary purpose of the horn, other information, such as the absolute knowledge of the spectrum of Cas A over a frequency band from 1400 mc down to 900 mc; a check that the flux from Cas A is invariant with time; and a measurement of the absolute temperature of the sky background, will also be of great value.

The first observations were made in October 1959 at 21 cm (1400 mc) and have been continued, with the exception of a couple of months each year. The horn is not covered by a radome, and therefore our weather hinders observations.

Each observation is calibrated by the thermal method, using a known temperature as a reference. The receiving equipment is the NRAO standard receiver using a conventional front end. Future plans include the use of a low noise device at the input, thus increasing the accuracy of each observation.

Results have shown that Cas A has an average flux density of approximately 250×10^{-25} watts per centimeter per cycle per second, or a temperature of $\approx 9^\circ$ at 1400 mc. These results were taken over a short period of time. However, as more data is obtained, the accuracy increases.

The Little Big Horn is maintained and operated by the Electronics Division under the supervision of Dr. Hein Hvatum. The present operator is Mr. James Oliver.

YOUTH SCIENCE CAMP

On Saturday, March 23, the members of the Program and Planning Committee of the Youth Science Camp met at the Observatory, with Dr. Hugh Johnson. Dr. Johnson is the Observatory's representative for the camp.

The West Virginia Centennial Commission has organized the Science Camp for high school boys, two from each state, who will be invited to the camp in July at Camp Thornwood, near Bartow.

Twelve members of the Observatory staff have agreed to give lectures at the camp; in addition, the 100 boys at the camp will spend a total of two days (or 4 half days) at the Observatory.

EDITORIAL

During the past months THE OBSERVER staff has asked that members give us suggestions as to how we might improve THE OBSERVER. To date we've had very little response, not even criticism.

It seems rather strange that 160 employees can all agree that we are doing the job as they would like to have it done. Can this be true or are we facing the problem that most of the employees have no interest at all in THE OBSERVER? We have no way of knowing unless you, the members, tell us what you want.

I feel sure there are some NRAORA members who could make suggestions and recommendations, not only to the NRAORA Board of Directors but to the general membership, which would be beneficial to the Recreation Association.

Why not use THE OBSERVER to convey this information to everyone?

We wish to thank those who have contributed news and articles in the past and hope that they and others continue to do so in the future.

MARCH BIRTHDAYS

4	H. M. Johnson
5	Linda Mullenax
6	E. M. Arbogast
9	Don Hovatter
11	Martin Barkley
12	George Grove
12	David Heeschen
16	Lillian Ness
20	Arthur Shalloway
26	Jim Ware

APRIL BIRTHDAYS

4	Cleo Harper
5	Merritt Gum
8	Claude St. Clair
8	Bob Vance
10	Bill Kuhlken
15	S. von Hoerner
17	Delbert Cassell
17	Hein Hvatum
17	Isabelle Michael
23	Burns Conley
25	Madge White
27	Maxine Foe
27	H. E. McCoy
29	Richard Spurlock

HERRINGTONS LEAVE

A farewell party and dance were given at the American Legion Hall in Marlinton on March 9 for the Riley Herringtons, who are leaving the 29th for Denver, Colo. (He was supt. for 140-ft. telescope from Stone and Webster.) Those present from AUI were Mr. and Mrs. Jack Irvine and Mr. and Mrs. Ed. Wilson.

MARCH 21st -- first day of spring -- %?Δλ/Δ*(\$(&* and also phooey. We've driven over two bad mountains every day this winter and on the supposed first day of spring the roads were worse than at any other time. We've had to use no chains and have rambled along very easily most of the time. I said rambled, not RAMBLERED. This day we were held up by and had the pleasure of witnessing a RAMBLER with "POSITIVE-ly no TRACTION" being towed over the mountain by a State Road Commission truck with a length of log chain. RAMBLER slogan must be, "You go in snow or State Road Commission will tow."

NRAO OBSERVATIONS OF VENUS

The results of the Mariner II studies of Venus, made at a cost for space vehicles alone of \$50,000,000 have shown that:

1. The microwave radiation from Venus comes from the Venus surface;
2. The surface temperature is about $800 \pm 120^\circ\text{F}.$;
3. The bright and dark sides are at nearly the same temperature.

About a year ago, the NRAO published studies made with the 85-foot telescope in 1961 which showed:

1. The microwave radiation from Venus comes from the Venus surface;
2. The surface temperature is $813 \pm 65^\circ\text{F}.$;
3. The bright and dark sides are at nearly the same temperature.

Therefore, although it is hard to find this in all the publicity about the Mariner exploits, our relatively inexpensive observations appear to be both correct and better than any that have been made. This reflects well on the Observatory, and will certainly be recognized in the years to come when the history of such studies is reviewed.

Dr. Heeschen, accompanied by Dr. G. F. Tape, left New York on March 21 to visit several radio astronomy installations in Europe. They will return on April 2.

Howard Brown and Omar Bowyer attended the IRE meeting in New York, March 25-28.

Nigel Keen and V. Venugopal recently visited with members of the Meteorology Division of BNL. They report that the Americana has almost everything -- even a telephone in the bathroom.

DR. TAPE PICKED FOR AEC --
DR. HAWORTH BECOMES NEW NSF
DIRECTOR

Dr. Gerald F. Tape, president of Associated Universities, Inc., has been picked by the Administration to be the new scientist member of the Atomic Energy Commission. Dr. Tape, a physicist, will replace Dr. Haworth who is resigning from the Commission to become director of the National Science Foundation.

Dr. Tape's nomination, and the new job for Dr. Haworth, have been announced by the White House.

Dr. Tape joined the Brookhaven National Laboratory on July 1, 1950, as assistant to the director. In October of 1951, he was appointed deputy director. Dr. Tape became vice president of AUI on Jan. 18, 1962, and president of AUI on Oct. 19.

Dr. Haworth joined the staff at BNL on Aug. 1, 1947, as a research physicist. On July 17, 1948 he was named acting director and on Oct. 14, 1948 was appointed director. On Jan. 1, 1952, he also became vice president of AUI. Dr. Haworth was elected president of AUI on Dec. 1, 1960. On April 1, 1961, he resigned both positions to become a commissioner of the Atomic Energy Commission.

OBSERVATORY WIVES

The April meeting of the Observatory Wives will be held Wednesday afternoon, 1:30 PM - 3:30 PM, April 10th, in the upstairs lounge of the Residence Hall.

140' TELESCOPE

Luckily for employees at the 140', a schedule has been worked out which will allow them to use the main road by the 85' and 40' telescopes. Efforts of the works area personnel to keep the back road in good condition have been hampered by thawing, freezing, and in general, very bad weather. On the few occasions that the back road was used, cars were dragging in deep muddy ruts in the evenings and deep frozen ruts in the mornings. Unfortunately, some personnel have damaged their automobiles and we now have a few customized jobs down here (those with mufflers torn off or damaged) that make a lot of noise.

We appreciate the efforts of those persons who made it possible for us to use the main road and will endeavor to abide by the schedule which was set up.

Production welding is underway on the aluminum superstructure. Pacific Crane & Rigging Co. employees are continuing repairs to weld joints and production welding.

Contracts have now been let for almost all of the offsite fabrication of large components as well as purchase orders for smaller components and accessory equipment.

Max Small has moved his office from Boston to his home in New York where he continues his work as project manager of the 140'. Interested persons who might have business to conduct with him can write him at 7 Otis Lane, Bellport, L. I., New York. His business phone no. is 516-AT 6-0759. Max reports that his leg appears to be mending satisfactorily and he hopes to be in residence at Green Bank around April 15th.

Spencer Greenwood has completed his work on the shaft, hydropads and supports, tail bearing housing and tail bearing of the 140' model. Lead counterweights have been installed and as soon as a contemplated drive motor is installed we will have a working model of the 140'. Who knows, we might even start observing after dedication of the model.

RETALIATE

(This article was contributed by an NRAORA member in reference to last month's cartoon.)

In last month's issue of the Clan
 There was a portrait of a man
 Whose two front teeth were emphasized.
 Some people like to criticize
 Us poor creatures who are blessed
 From brushing teeth with too much Krest.
 So from these slurs you should refrain;
 When you get your blast of novocain,
 And have them yanked and cannot chew,
 Our poor souls will pity you.
 Since this was suggested by the boss,
 We wish to thank you Roth and Ross.
 So just remember when your day comes
 You too can smile and show your gums.
 When this day comes we cannot tell
 So take care of your's, we wish you well.
 Beware, decay will come and take its toll
 And your mouth will become a vacant hole.
 You will have no teeth that we can see,
 And you will not get our sympathy.

 The March 11 snow caught several people without their boots. However, Sis Michael learned of a way to keep her feet dry.

 Phyllis Jackson wishes to thank everybody for their cards, visits, and get well wishes while she was a patient at Poca-hontas Memorial Hospital.

We are glad to see Phyllis back on the job.

LAB GAB

Who will be characterized this week. See the last page and find out at whom the phantom artist will strike again.

It seems a damp spot on the Knapps Creek road kept several of our Marlinton employees at home the other day. Dewey says there were 6 feet of water — hmm umm - although we've been having a little rain lately.

The Electronics Division now has its own telephone directory.

Carl and Bill have been visiting the Big City on business. They attended the IEEE and saw some interesting and strange sights. Come to think of it, so did the New Yorkers.

We now have a new ulcer consultant at the lab. Go see Sarge -- he has a better stock of gastric goodies than D. Ross.

We are getting three more teknishuns and an electro-mechanical man (?) -- due in about 3 weeks or so. For a do-it-yourself repair kit, see John Hensley.

John Hensley recently spent a week in Richmond, California attending a service seminar at Beckman Instruments Co. John reported that the seminar was very interesting, the freeway fast, and the weather was wonderful.

The lab supply room now has a neat railing between the partitions and ceiling. Someone said it was to keep the basketballs from bouncing out.

Mike Waslo has been transferred to the Scientific Services Division where he will assist Dr. von Hoerner in his project and will also still operate the Reber dish.

NRAORA

The first few days of warm weather, after such a severe winter, instill in most of us a strong desire to be outdoors. We begin looking through seed catalogs and making plans for our gardens (hoeing and weeding are excellent exercises for wives, anyway), on Sunday afternoons we take the family for a drive - perhaps we visit the old Hannah place, the site of our recreation area.

Plans are now being made to get ready for the rapidly approaching summer season. The children's play sets have to be taken out of "moth balls" and set up. The picnic tables and fire places must be placed in their respective locations. The golf driving range and the tennis courts survived the winter without any apparent damage, but will have to be checked closer.

Much time and money have been spent at the recreation area and we need more participation this summer. More suggestions and constructive criticism instead of griping will create a better NRAORA and a friendlier atmosphere. The Board of Directors welcomes suggestions and will consider each and every one.

Some of the projects proposed for this summer are:

1. Drilling a well to provide fresh, clean drinking water.
2. Constructing a putting and chipping green.
3. Building a miniature golf course.
4. Placing targets for an archery range.
5. Erecting bleachers for soft-ball spectators.
6. Building a shelter for "foul-weather" picnickers.

Volunteers may be needed for some of the above-mentioned jobs, so look out.

VENUSIAN SCIENTISTS REPORT
FINDINGS OF EARTH II

A rather amusing article appeared in the "Letters to the Editor" section of Time.

A reader wrote that perhaps Venusian scientists may have sent a probe to Earth and revealed their findings. While what follows is not the letter that appeared in Time, the following, however, does convey the idea that the article made.

Venus - December 14. Scientists who have reduced and studied the data sent back by the Earth II probe have painted a grim picture of the planet Earth. Sensitive radiometers detected large amounts of the deadly gas, oxygen, the atmosphere of the planet. Preliminary studies indicate that this lethal gas may make up as much as 20 percent of the atmosphere. In contrast, no evidence of life sustaining ammonia gas was detected.

Another radiometer operating at millimeter wavelengths confirmed the presence of large amounts of the poisonous liquid, water. Our scientists have long felt certain that Earth was practically covered with water.

Scientists have long suspected Earth to be quite cold. This was also confirmed by equipment aboard the probe. In fact, the planet was found to be colder than suspected. The probe's equipment registered variations in temperature from minus 70 degrees to 80 degrees Fahrenheit. No people like our own, who require an average Fahrenheit temperature of 80 degrees, could inhabit a planet so cold.

The atmosphere above earth was found to be contaminated with atomic radiation. There is no doubt that the creatures that live on Earth have discovered atomic power and are blissfully on their way to atomic annihilation. If you remember your ancient history, you will recall that our forefathers discovered the atomic bomb over 2,000,000 years ago and outlawed its use immediately after they discovered the existence

of the phi-mu-meson. The eventual build up of this atomic sub-sub particle ultimately results in the triggering of a nuclear chain reaction.

In view of the recent findings of Earth II, and the morbid picture Earth presents, our scientists will not make an Earth landing. Instead, they will direct their talents and efforts to the more attractive planet Mercury.

FOR SALE

1-set multiplying rope blocks and 150' of 1" dia. rope for \$15.00.

1 - 10 ft. rowboat marine plywood, 85 lb. wt., original cost \$80 - sell for \$50.

1 - 250 amp electric welder complete with 25 ft. new welding cable and stinger, hood and ground cable -- all for \$75.00.

1 - 20 ga. shotgun, 3 shot bolt action, like new -- original cost \$37 -- sell for \$20.

See Douglas Keener at Engineering Division or phone 456-2240 after 5 PM.

ATTENTION BIG GAME HUNTERS

The NRAORA has some cal .177 and .22 lead pellets for sale. The price is right - contact Bill Meridith if interested.

THE COIN CORNER by L. W. McPherson

Standards are set up for the various grades of circulated United States coins. Naturally, the beginner has to learn these in order to compete with the older and established collector. The average collector depends to a great extent on the opinions of the dealer from whom he buys, but if he or she is collecting from their pocket change or from the corner grocer, they must know the grades of coins.

The idea has prevailed among collectors and dealers that the grading of coins is a matter of personal opinion and that no two people will grade the same coin alike. However, the fact remains that the more experience the collector has with different kinds, types, and conditions of coins, the more confidence they will have in using a standard grading system. Beginning collectors have a tendency to overgrade a coin. It is always better to undergrade a coin, about which there is any doubt, then to overgrade.

The most recognized and the most used is known as the B and D grading standards. These were established by Martin R. Brown and John W. Dunn, two great numismatists. They recognize six principal categories and two minor ones in the grading of circulated coins:

No. 1 - Good (G), No. 2 - Very Good (VG), No. 3 - Fine (F), No. 4 - Very Fine (VF), No. 5 - Extremely Fine or Extra Fine (XF), and No. 6 - About Uncirculated (AU). For scarce early U. S. coins two other grades are added. (1) Fair (Fr.), and (2) About Good (Abt. G).

Uncirculated coins are divided into three categories or trade names -- Choice, Select, or Gem.

Every series of coins grade differently. A category of Good, for instance, does not apply to all coins of the same denomination, as it depends on the design of the coin. I advise you to buy a Guide to Grading.

A coin can be graded as Good to Very Good, (G-VG), or Fine to Very Fine, (F-VF), etc. This means

that the coin in question more than meets minimum standards for the lower grade, but is not quite good enough for the higher grade. To illustrate: A Liberty Head nickel to be Good need not show any of the Liberty on the crown, but one graded Very Good must have at least three letters of the word Liberty on the crown showing. Such a nickel with one or even two of the letters in Liberty showing could hardly be called Good or Very Good; hence, such a coin should be graded Good to Very Good or Good plus.

In the grading of all coins a good magnifying glass should be used. Let's sum it up this way. Any coin you need for your collection to complete your series is, in your own opinion, a Good one until a better one can be found to take its place. Try and replace your most worn coins with better ones. You should try to get coins with clear dates and all mottoes plain and readable!

DID YOU KNOW?

... There were no cents minted at San Francisco during 1932, 1933, and 1934.

... Only the Philadelphia Mint minted quarters during 1921 and 1922, and no quarters were minted at all during 1923.

... If you had a complete set of Lincoln cents from 1909 until the present time, including all dates, types, and mints, you would have a face value of \$1.54.

... That the first authorized coin in the United States to carry a portrait of a U. S. President was the Lafayette dollar of 1900, which carried a portrait of George Washington as well as Lafayette.

NIGHT OWLS, BEWARE!

Last month's issue stated that the Wednesday library hours were to be from 9:30 - 11:30 PM. They should be listed as:

Wednesday: 9:30 - 11:30 AM

This has been arranged particularly for the convenience of mothers with children in school; we hope you will be able to take advantage of this time!

LOOK OUT THAT WINDOW.....

If the weather doesn't seem fit for man, beast, or volunteer librarians..... we may not want to venture out any more than you do!!!

In such a case, a call to the receptionist, 456-2011, will tell you if the library hours are cancelled for the day!

NEW EMPLOYEES

Linda Friel, Scientific Services Division, from Clover Lick, W. Va.

Harlan Moyers, Engineering Division, from Franklin, W. Va.

Lamar Wooddell, Scientific Services, from Green Bank.

Gail Geiger, Plant Maintenance, from Marlinton, W. Va.

Naomi Rider, Fiscal Division, from Marlinton.

Claude Bare, Electronics Division, from Clearwater, Florida.

CO-OP'S

Al Braun and Chris Leach of VPI and Jim Pensinger and Alan Roth of Georgia Tech have returned to their respective schools.

Bill Lowman of Georgia Tech and Ellis Remsburg of VPI will be at NRAO for the next three months.

Welcome to Jim West, new co-op from VPI, who will also be here for the next three months.

TERMINATION

Bill Warner, Scientific Services Division, has returned to his home in Charleston.

85-FOOT NEWS

The 750 mc polarization experiment is underway under the direction of Dr. David Hogg and Dr. Ivan Pauliny-Toth.

The feed assembly has been labeled "Made in USA by Jap Technicians". After seeing how compact everything is, this might be true.

Howard Brown has been busy helping Perry Mason solve "The Case of the Mischievous Doll", while Odell Johnson has been teaching Chris Leach the difference between "accumpucki" and "skutch-kee".

PREPARATION FOR ARCHERY

by The Old Archer

One out of every four deer killed by archers in the State of Pennsylvania in 1953 bow hunting season was bagged by a bowman who was hunting with a bow for the first time. It is admitted that the element of chance can favor anyone of us; but in the long run, success in the hunt will come to the hunter who has mastered the technique of shooting a bow, and is able to shoot accurately for a distance of thirty yards. Statistics gathered over a period of years in the State of Wisconsin show that deer are killed at distances which average slightly under thirty yards. Returns from a questionnaire submitted to the successful bowhunters in 1951 special archery deer season in Pennsylvania contained data which indicated that the average deer was shot at thirty-two yards. One bow hunter reported killing a buck at seventy yards, and the shortest range at which a kill was reported was ten yards. No record is available of the number of deer missed by more than 14,000 bowmen who purchased special archery deer licenses in Pennsylvania for the 1954 season, nor is it possible to break down the total to show the number of skilled archers who participated in the hunt, but lacked the necessary hunting skill to bring them within bow range of a legal buck. Nevertheless, from a limited personal survey, the conclusion is inescapable that poor marksmanship is primarily responsible for the negligible number of antlered deer killed in the Keystone State.

I do not mean to infer that a skilled hunter who is also an expert field archer can be certain to bag a deer. It would be nice if such were the case. Unfortunately, examples could be cited where the exact opposite is true. The unexpected and the unpredictable are part of the sport of deer hunting. Eliminating chance, there are two principal factors which govern a successful hunt. The first is the ability to stalk a deer, an art seldom practiced by the rifle hunter; and the second factor is the marksmanship

of the bowhunter. Of the two, the second is the easier to acquire and the one for which an excuse is least justified.

Ability to hit a chosen mark with reasonable consistency with the first arrow is an acquired art, and a goal that is within reach of every bowman provided he or she is willing to take the time required to learn the technique of shooting a bow.

Mr. Callender and Mr. Riffe were at Kitt Peak National Observatory, Tucson, Arizona, March 16-21 attending a meeting of the business officers of Kitt Peak National Observatory, National Center for Atmospheric Research, of Boulder, Colo., and the National Radio Astronomy Observatory.

Norma Simmons, who was assigned to Scientific Services, accepted the position of Secretary to J. R. Plunkett. The position was made available due to the resignation of Carolyn St. Clair.

We are so happy to see Virginia Irvine back at the cafeteria after an extended illness. Good wishes to you Virginia. Keep well.

The marriage of Carolyn St. Clair to Garlan Ayers was solemnized Saturday, March 16, at 7 PM, at the Epworth Methodist Church in Covington, Virginia. Rev. Richard H. Shopland performed the ceremony.

Carolyn is the daughter of Mr. and Mrs. Claude St. Clair and Garlan is from Covington. They will make their home at Leonardstown, Maryland where he is stationed with the U. S. Navy.

WHEN SPRING ARRIVES

There comes the time of year, at last,
when winter's cold has almost passed;
when nights are chill and dawns are gray,
but sunshine warms the heart of day.

When skates and marbles come alive,
and daylight stretches long past five;
when serenade of frogs is heard,
to welcome each returning bird.

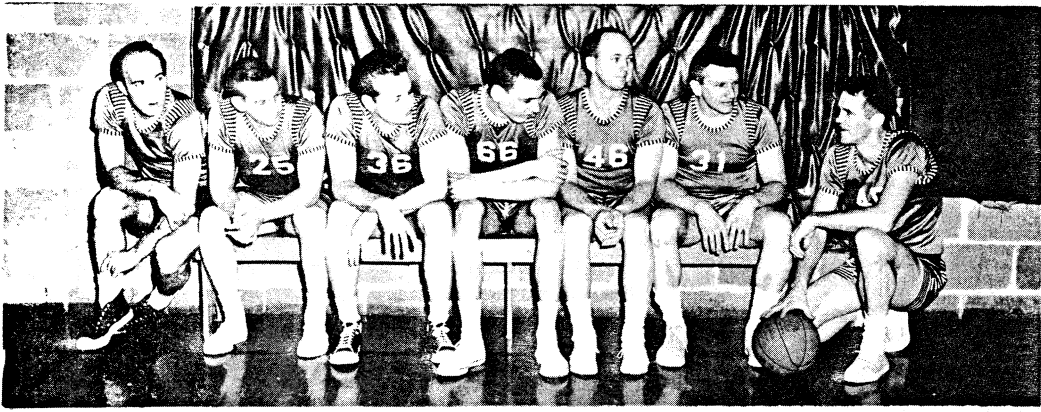
When wobbly awkward lambs abound,
and violets dress up the ground;
when wind is high and creek is wild,
and mud on wheel and boot is piled.

When kite appears, and jumping rope,
and heats beat faster, spurred with hope;
when sap from maples faster flows,
and there's less need for heavy clothes.

It's then I sense a will to strive,
when nature starts to come alive;
and dreams seem not so far away,
as in the cold of yesterday.

So this I pray as spring appears,
and brings encouragement to years;
may I no less give promise too,
and grow, and strive as men should do.

A. N. ONYMOUS



Teams From Top To Bottom: Green Hornets - Captain Ron Monk; Blue Devils - Captain Tom Carpenter; Brown Bombers - Captain Arnold Davidson; Red Raiders - Captain Carl Davis.

BASKETBALL 1963March 7

The Brown Bombers pulled away from the Red Raiders in the three minute overtime period and won what was a very close game by a score of 58 to 50.

The Green Hornets squeezed by the Blue Devils 41 to 40 in a game that was decided in the final fifteen seconds. This put the Hornets in a three way tie for first place with the Devils and Raiders.

March 14

The Raiders and Hornets had quite a battle to determine who would drop out of contention for first place. After trailing by three points at the half the Raiders won the game 46 to 43.

In the second game of the night, the Devils striving to stay in a tie for first place, had to come back in the second half to defeat the Bombers 42 to 36.

March 21

The Devils and Raiders in a tie for first place met in the first game of the evening and staged a fighting battle for first place. The Raiders came out on top 40 to 27 to win their second regular-season championship in as many years.

In the final game of the regular season, the Bombers downed the Hornets 51 to 48 in an overtime game.

Team Standings

<u>Team</u>	<u>Won</u>	<u>Lost</u>	
Red Raiders	9	6	Note of interest: The Hornets handed the Devils five of their seven losses.
Blue Devils	8	7	
Green Hornets	7	8	
Brown Bombers	6	9	

Money collected due to a ten cent cover charge has netted the Recreation Association \$128.75. This money will be paid on the basketball uniforms. The Recreation Board has voted \$200.00 for the uniforms with the remainder being made up by various means.

The largest turn out for a single night was 143 patrons. The majority of these people were from Cass. Observatory people seemed extremely disinterested in attending their own basketball games.

STATISTICS

<u>Team Scoring</u>	<u>Total Points</u>	<u>Average Per Game</u>
Green Hornets	696	46.4
Brown Bombers	694	46.3
Red Raiders	660	44.0
Blue Devils	592	39.5

<u>Team Defense</u>	<u>Points Given</u>	<u>Average Per Game</u>
Red Raiders	606	40.4
Blue Devils	640	42.7
Brown Bombers	689	45.9
Green Hornets	707	47.1

Top 20

<u>Individual Scoring</u>	<u>Games Played</u>	<u>Total Points</u>	<u>Average Per Game</u>
Monk	14	237	16.9
Cassell, C.	14	223	15.9
Cassell, B.	12	222	18.5
Arbogast	15	197	13.1
Cassell, J.	11	175	15.9
Ralston	13	151	11.6
Vance	13	106	8.2
Howell	6	103	17.2
Carpenter	14	101	7.2
Gum, M.	15	98	6.5
Davidson	15	90	6.0
Shears	12	89	7.4
Oliver	14	87	6.2
Leach	10	87	8.7
Cassell, D.	12	86	7.2
Bird	12	67	5.6
Vrable	14	59	4.2
Davis	15	55	3.7
Simmons	12	50	4.2
Lowman	2	48	24.0

TOURNAMENT

The single elimination tournament will be played on April 2 and 4. Tickets for both nights cost 50 cents if bought in advance. Admission at the door will be 30 cents for each night and 10 cents for school children.

Tournament Schedule

