

BULLETIN BOARD

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2180-Mile Synchronization NRA Leads to Record Observation

2544

The successful conclusion to the longest baseline interferometer observation yet conducted yielding a resolution that enables radio astronomers to "see" an object smaller than is possible with any optical telescope was reported yesterday from Green Bank, West Virginia.

In the dual observation, astronomers from the National Radio Astronomy Observatory (NRAO), the University of California, and Arecibo Ionospheric Observatory teamed the NRAO 140-ft radio telescope at Green Bank, with the 85-ft radio telescope of the Hat Creek Observatory (HCO) of the University of California. This represents a baseline (distance between telescopes) of 2180 straight line miles.

The two telescopes were operated on a wavelength of 18 centimeters, and focused on the quasi-stellar object known to astronomers as 3C273B, located some 1.8 billion light years from earth. As a result, its angular diameter was determined to be smaller than 0.005 second of arc, which is four times less than the 0.02 second of arc indicated previously for this object. This is the smallest angular dimension ever measured directly for a celestial object. It provides further confirmation that 3C273B is one of the most compact and intense sources of energy known in the universe. Its energy production is comparable to that of 1000 Milky Way systems but its size is smaller than the distance to the nearby stars — more than 500 times smaller than our Galaxy.

Radio astronomy's capability to achieve this high degree of resolution is the result of applying the principle of interferometry. In its simplest form, interferometry is the use of two or more telescopes to look at the same object at the same time. The farther part the telescopes are (the longer the baseline), the better is the resolving power.

The Green Bank-Hat Creek effort represents the most advanced interferometry observation ever concluded successfully. According to the radio astronomers at NRAO, the 0.005 second of arc resolution achieved is the equivalent of seeing a 25-ft object on the moon from earth. In astronomers' language, this means the 25-ft object on the moon's surface would subtend an arc of 0.005 second here on earth. By comparison, if an optical telescope located in Green Bank had the same resolving power, an astronomer would be able to see a three-inch object located in California.

While the principle of interferometry is not new, it is only in recent years that radio astronomers have made a concerted effort to utilize its potential. In the usual form of interferometry the telescopes are physically connected together, with the signals from each telescope electronically brought together and combined for subsequent analysis by the astronomers.

As the baselines get longer, it becomes impossible to keep the telescopes physically connected. In the Green Bank-Hat Creek observation, data taken at each telescope were synchronized by the use of extremely accurate atomic clocks and recorded on magnetic tape, and only afterward were the data from each telescope fed into a



The 140-foot radio telescope used in the experiment.

computer to be combined and displayed. This technique was originally developed in previous but separate experiments between Green Bank and the Arecibo Ionospheric Observatory in Puerto Rico, the U.S. Naval Research Laboratory Facility at Maryland Point, Maryland, and the Haystack Microwave Facility of the Lincoln Laboratory, operated by MIT.

The radio astronomers who successfully accomplished the Green Bank-Hat Creek experiment were Dr. B.G. Clark of the NRAO, Dr. M.H. Cohen of the University of California at San Diego, and Dr. D.L. Jauncey of the Arecibo Ionospheric Observatory operated by Cornell University.

The National Radio Astronomy Observatory is operated by Associated Universities, Inc. under contract with the National Science Foundation. BNL, also operated by Associated Universities, Inc., is under contract with the Atomic Energy Commission.

International Researchers Confer . . . 9-929-67



At the International Conference on Solid State Physics Research with Accelerators some of the speakers are shown at the Physics Department Lecture Hall. Left to right are: J. Lindhard, invited speaker from University of Aarhus, Denmark; Jenifer Lomer, University of Reading, England; Allen Goland, BNL, chairman of the conference; and Cavid Erginsoy, Mid-East Technical University, Turkey.

Lectures Postponed

Word has come to Brookhaven that M. Andre Maurois, the French biographer, author, historian who is to be the 1967 Pegram Lecturer, must undergo emergency surgery. M. Maurois was to have spoken here in October on the topic "The Illusions" — a) The Illusions of the Senses and the Sentiments, b) The Illusions of the Intellect and of Science, c) The Conscious Illusions or the Fine Arts. The lecture series will be postponed until M. Maurois has recovered from his operation.

Solid State Physics Conference at BNL

BNL is currently hosting a four-day International Conference on Solid State Physics Research with Accelerators. The Conference, chaired by Allen Goland of the Physics Department, is sponsored by the United States Atomic Energy Commission.

Dr. George H. Vineyard, Deputy Director, welcomed approximately 100 attendees from all over the world at the opening session on Monday morning. A total of 35 papers will be presented before the Conference ends on Thursday afternoon with a panel discussion on Potential Uses of Accelerators for Solid State Physics Research. The subject matter of the papers being presented deals with the theory and experimental results of using particle accelerators to bombard crystals and alloys of various metals.

Conference sessions were scheduled every morning and afternoon, except Wednesday afternoon, when attendees and speakers participated in individual discussions and toured some of the Laboratory facilities.

Scientific representatives from many of the major physics laboratories in the world are at the Conference, either as a speaker or an attendee. Some of the countries represented include Belgium, Canada, Denmark, England, France, Germany, Holland, India, Sweden, Turkey and Yugoslavia.

Wm Floyd P'kway Opened for Traffic

At 9 a.m. on Tuesday, in a move witnessed by James Kuzloski of the New York State Department of Public Works, and Joseph Mullins of Lizza and Sons, Inc., the barricades were removed from the William Floyd Parkway at Jericho Turnpike. In a few hours, the road was opened to traffic from Route 25 in Ridge to Route 25A in Shoreham.

Three workmen fastened ropes to the long-standing barriers, and unceremoniously hauled them onto the center mall of the new parkway allowing cars to pass without restriction. The work party then proceeded to the Whiskey Road intersection where some small barriers were taken away, and finally to Route 25A for the last barricade to north and south traffic.

Work on the road was first started in January of 1966, and progressed very rapidly. Early in the spring of 1967 most of the heavy construction was finished, and by the middle of July, the only work to be finished was the guard rails, the traffic delineators and the signs. At this point various difficulties were encountered, and work was apparently stopped until the early part of September. C 704282



First car passes after the barriers have been removed.

Many drivers from BNL who live on the North Shore began using the unopened road as an alternative to using the Randall Road detour which was usually in poor shape due to construction and flooding. On August 30, several of these drivers were given traffic tickets for "use of a restricted highway."

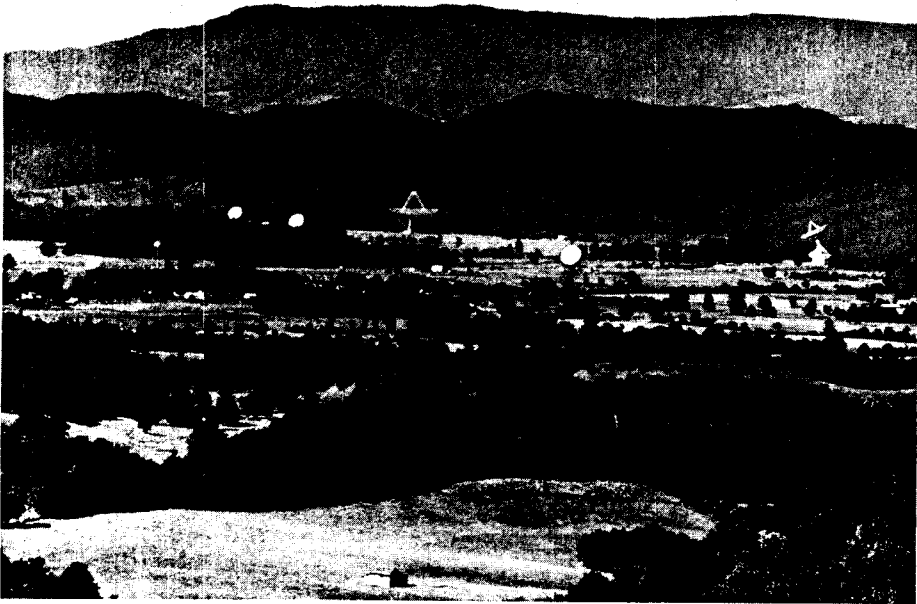
Upon inquiry by the *Bulletin Board* it was learned that the road was not scheduled for completion until late in December, and that there was little hope at the time for even meeting that date. After many conferences with officials from Lizza and Sons and with the Public Works Department, the opening date was moved to the middle of October.

Some BNL employees circulated petitions which were transmitted to the Department of Public Works, and after this the *Bulletin Board* was informed that new subcontractors had been hired, and that the road would be opened "as soon as possible." Last week, in a joint announcement to the *Bulletin Board*, the State Department of Public Works and Lizza and Sons said that the road crews would work overtime and attempt to have the road ready for use at the beginning of this week.

Meanwhile, the persons who were ticketed were asked to contact the *Bulletin Board* so that some concerted action could be planned in order to defend their use of the road. At present, each of these people is being sent a letter containing the names of the others who were ticketed.

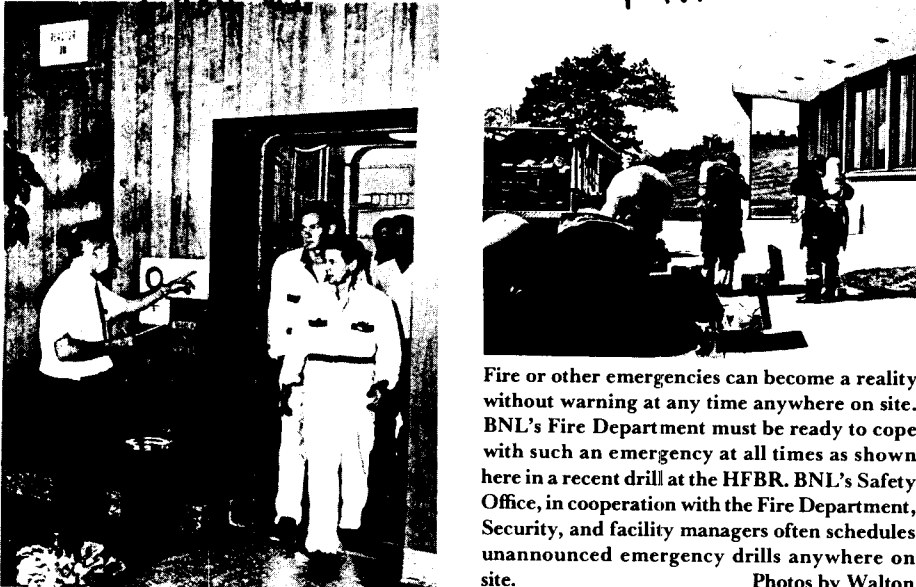
The new road will provide a direct route from the North Shore to Smith Point Park, as well as an easier access to BNL. Speed limit signs have not yet been posted, but as users of the southern sector will testify, 50 mph is the maximum.

Concise Cross Country Coordination



The eastern end of the 2180-mile baseline of the interferometer experiment was located in the Deer Creek Valley at Green Bank, West Virginia. In the picture above are shown the three 85-foot radio telescopes (white dots in left center), the 140-foot telescope (right) which was used in the experiment, and the 300-foot transit telescope (center). Green Bank was chosen as the location of AUI's National Radio Astronomy Observatory because the area is relatively well-shielded and free from sources of man-made radio noise.

Emergency Drill at HFBR ... 9-481-67



Fire or other emergencies can become a reality without warning at any time anywhere on site. BNL's Fire Department must be ready to cope with such an emergency at all times as shown here in a recent drill at the HFBR. BNL's Safety Office, in cooperation with the Fire Department, Security, and facility managers often schedules unannounced emergency drills anywhere on site. Photos by Walton



Hospitality News

A Sewing Club (with demonstrations of sewing) is being formed and the first class will be on Tuesday, October 10. Mrs. C.

Sastre has consented to conduct the classes which will be held from 10 a.m. to 12 noon every other Tuesday in the Recreation Building. Interested ladies should bring a notebook and pencil.

For further information, call Mrs. Sastre at SH4-5080.

Here and There

Dolores del Castillo

Arnold Carsten (Medical) will be in Bimini, West Indies, at the Lerner Marine Laboratory. Lerner Labs has facilities for handling sharks and they are presently studying the effects of radiation on the central nervous system of sharks.

Neal Roberts and Paul Colzman (Reactor) are on a bi-monthly commuting basis to the United Nuclear Company, in New Haven, for the inspection and fabrication of the HFBR Fuel Elements.

A new tank will soon be erected northeast of the HFBR Building which will be a hold-up tank to be used for the remote possibility of the cooling tower becoming contaminated.

Edward Iberger, James Nekerman and William Rembt (all of PM) will attend the General Motors Diesel Training Center in Detroit.

Gillian Murray of Oxford University, England, will be visiting at the Laboratory on Sept. 29.

Noel M. King of Rutherford Laboratory will be here at the Laboratory for discussions on Sept. 29.

Victor W. Cohen (Physics) will leave Oct. 2 to present a paper at the German Physical Society meeting to be held in Berlin. While overseas, he will also make visits in Tubingen, Anakara, Athens, Geneva, and Sussex.

Alfred P. Wolf (Chemistry) has been invited by the Japanese Chemical Society to address the 18th Symposium on Organic Reaction Mechanisms to be held in Kyoto. He will also present a paper at the 4th International Meeting on Hot Atoms. Following this, he will lecture at the Osaka University.

V.R. O'Leary (Budget Office) will attend the Annual Budget Officers Meeting to be held in Oak Ridge in October.

H. J.C. Kouts (NED) will leave for Tokyo on Oct. 14 to serve as Secretary for a meeting of the European-American Committee on Reactor Physics.

Manny Hillman (NED) will leave on Oct. 9 to deliver a paper at the 4th International Hot Atom Symposium to be held in Kyoto. Following the Atom meeting, he will attend an IAEA study group meeting on research reactor utilization at MIT.

L.P. Hatch and E. J. Tuthill (NED) will attend a waste disposal meeting at Pacific Northwest Laboratories, Richland, Washington, next week. An alumnus of BNL, Gerald F. Tape, AEC Commissioner, will serve with Glenn L. Seaborg and four others as delegates to the 11th session of the general conference of the International Atomic Energy Agency.

Arrivals & Departures

Arrivals

Raymond C. Atkins.....Accelerator
 Mario DePas.....Chemistry
 William Gelletly.....Physics
 Henry Lee, Jr.....Personnel
 William D. Leon.....Security
 Nancy Ann Rapp.....Accelerator
 Marjorie L. Rudert.....Biology
 Clifford G. Shull.....Physics

Departures

Jose L. Alvarez-Rivas.....Physics
 Jerry K. Andritz.....Physics
 Shirley Fields.....Physics
 Ann H. Miller.....Nuclear Eng.
 Michael J. Welch.....Chemistry
 David S. Woodson.....Plant Maint.

Letters To The Editor

Letters should be less than 200 words, bear the writer's signature and life number, and indicate if the writer desires to have his name withheld from the published letter.

Dear Sir:

I am a victim of what has become known as the "Schaeffer Plot." As your regular readers will recognize, Dan Schaeffer unmasked that mysterious plot wherein some thoughtless fiend is trying to use building numbers instead of street addresses at BNL.

The plot has suddenly thickened with the publishing of the July 1967 telephone directory. Persons listed in the directory have their phone number listed to the left of their name and the building number on the right of their name after their Department and address. The super genius who thought this up probably realized that in conventional phone books phone numbers are given on the right side of a person's name and address. Thus he realized he could plague all of us who have an extension number which corresponds to a building number.

The end result in my own case is that I receive at least 10 phone calls a day from people who insist that they looked a person's number up in the new phone book and saw my extension number. They get annoyed at me when I tell them the party they seek is not at my number. I don't dare give my name or number to you for publication as some of the mistaken callers are liable to hunt me up for the "pleasant" responses they've received from me.

Victim

Dear Sir:

I am writing to suggest that you include additional information in your listings for the BERA Film Series.

It would be very helpful to know the names of the starring players, the director, and the year the film was made.

I am not alone in thinking that this would stimulate interest in and attendance at the films.

Thank you for your consideration of this matter.

Mary Alice Borg

P.S. And don't forget the shorts!

Service Awards - Sept. 1967

Twenty Year

Steele, Robert.....Biology
 Bull, Marshall H.....Photo & G.A.
 Chernick, Jack.....NED
 Winters, James D.....Plant Maint.
 Lutz, Charles.....Plant Maint.
 Hastings, Julius M.....Chemistry
 Vogelsang, William.....NED
 Gustavson, Milton.....Reactor
 Chase, Robert L.....I & HP
 Van Avery, Arnold.....Security
 Caiola, Louis P.....Arch. Plan.
 Moore, William H.....ADP
 Maile, Harry H.....Photo & G.A.
 Gorman, Frank.....Biology
 Brown, Robert P.....Photo & G.A.
 Folls, George M.....System & D.P.
 Fuchs, Robert J.....Reactor
 Newsom, Odell.....Plant Maint.
 Bunt, John A.....Plant Maint.
 Mulcahy, Robert E.....Plant Maint.
 Cox, George R.....Photo & G.A.
 Trebing, Joseph C.....I & HP
 Herbert, Malcolm.....Photo. & G.A.

Ten Year

Austin, Matilda H.....Physics
 DeVito, Basil.....Accelerator
 Di Gerolamo, Robert A.....Shops
 Forsberg, Helen.....Information
 Hillen, Luise.....Medical
 Kenny, John M.....Fire Dept.
 Kirkpatrick, Claire C.....Shops
 Meinhold, Charles B.....I & HP
 Nash, Louisa.....Staff Svcs.
 Pate, Howard R.....I & HP
 Paul, Catherine T.....Chemistry
 Rosso, Matthew J.....Physics
 Swatton, William E.....Physics

Football Notes

by Jack Brennan

This week playing produced two overtime games. The Batmen nipped the Slow Pokes 25-24 to take over first place. Jim Hooper, Jake Leventhal of the Batmen, and Frank Humphrey of the Slow Pokes had two TD's each. AGS broke into the win column, nipping the Kickers 25-24 in overtime. Lou Muga of the Kickers had three TD's and Frank Campbell of AGS had two TD's. The Panthers rolled into 3rd place, shutting out the undermanned Chamber Chaps 18-0.

	W	L
Batmen	4	0
Old Timers	3	0
Panthers	2	1
Slow Pokes	1	2
AGS	1	3
Chamber Chaps	1	3
Kickers	0	3

BERA Film Series

**Thursday, Oct. 5 - 8 p.m. - Lecture Hall
Last Year at Marienbad**

Without a doubt, this film directed by Alain Resnais is the most demanding in many years. Resnais has broken with all former tradition of cinema chronology in telling his story; the events are not only shown as they happened, but, also, as the characters would have like them to happen. Past, present, and future are fused as a young woman at a baroque hotel is slowly convinced that a stranger is a former lover (or is he?). Marienbad is not a movie in the accepted sense of the word; it is a monstrously elaborate enigma.

—Harvard Lyman

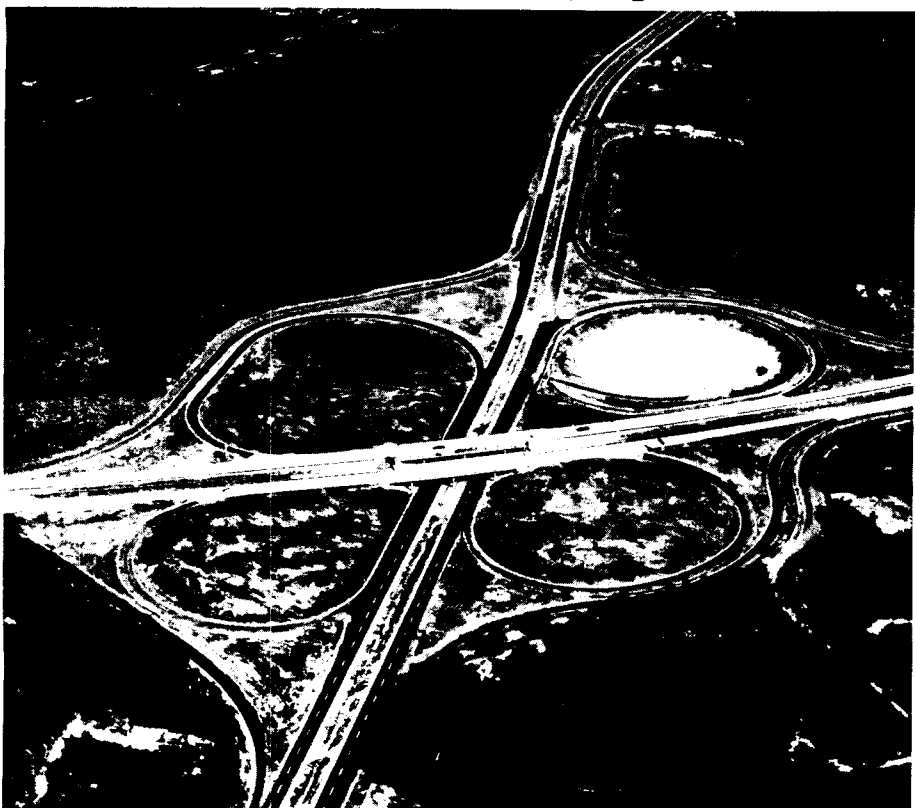
Short: McLaren Abstracts

Movie Tonight: The Troublemaker

Aviation Club . . .

On Thursday, September 28th at 8:00 p.m. in the Recreation Hall, the BNL Aviation Club will hold a meeting.

William Floyd Parkway Finally Opened



Aerial view of the newly-opened William Floyd Parkway. The road running from left to right in the picture is Jericho Turnpike. Photo by Walton

Kegler's Korner

Pat Towey

They are off and bowling. The Red league is off to a fine start: Jerry Warner - 245; J. Sucher and E. Sundberg - 233; J. Ferranti - 248; and E. Zimmerman rolled 220/216 for 606 scratch series. Pink league high game belongs to Carol Beckner with 205. Purple league had A. Kreisberg convert the 3-7-10 split.

Fish Tales

by John Tagliavia



The Largest Fish award, as if you hadn't already guessed, goes to Dick Albert for his 13-lb. 13-oz. bluefish. Dick caught his fish trolling outside Shinnecock Inlet on the West Bar. As I mentioned in a previous article, this is easier said than done. It is not recommended for those who are unfamiliar with the area.

The average fish award was won by John Jenny for his 7-lb. 13-oz. fluke trolled inside Moriches Inlet using live killie. Anyone who has ever caught a fluke that big can well imagine what the closing seconds of that fight must have been like. Gee, that fish must have made some dandy filets.

The most outstanding catch, however, for the bi-monthly period was Mary Boruso's 5-lb. 2-oz. porgy. Due to a contest ruling, Mary's fish was not eligible this time for the largest fish award, but this does not alter the fact that her catch approaches record proportions. It also adds a fantastic number of points to her total accumulated score towards the "Fisherman (excuse the expression) of the Year" award. She has large fish entered in about five or six categories, so if you want that surf outfit, expand your field of endeavor.

Nighttime on the North Shore has always produced unusual sights for the observant. But two weeks ago a drama was played there that could have been taken straight from the "Cenozoic" period - Tony Bono and Ricky Ferdinand lulling a 7-foot shark to eternal sleep with basketball-size rocks.

New Concert Series Starts With Strings



The BERA Concert Series will begin this year on October 11th with a performance by the Guarneri String Quartet. The members of the group are: Arnold Steinhart, violin; John Dalley, violin; Michael Tree, viola; and David Soyer, cello. The collaboration of these artists is a result of years of playing chamber music together at the Marlboro Music Festival in Vermont, and the Casals Festivals in Puerto Rico.

The program at Brookhaven will include: Quartet in A major, K. 464.....Mozart Quartet, Op. 3.....Berg

Quartet in A minor, Op. 41.....Schumann
Other concerts in the season include:
Duo Rampal Veyron Lacroix.....November 9
Pasquier Trio.....December 5
Oscar Ghiglia (Guitar).....January 25
Evelyn Crochet (Piano).....February 27
Early Music Quartet.....March 21

All concerts take place at the Brookhaven Center at 8:30 p.m., followed by refreshments. Admissions: Season tickets, Adults, \$10.00; Children, \$5.00. Single Admissions: Adults, \$3.00; Children, \$1.50; Non-employee guests, \$3.50. Season tickets will be sold in each department.

Billie's Boy Between Burps

The Fall production of the BERA Theatre Group will be Garson Kanin's Born Yesterday. The central role of Billie Dawn will be played by Elaine Friedman, who is at present incommunicato. The following is an interview with one who knows her best.

Tony Nappi: Well, it certainly is a pleasure to meet you, Mr. Friedman.

Michael Friedman: It should be. I'm the son of a star.

T.N.: You sure are. Tell us, Mr. Friedman, how do you feel about your mother being cast as Billie Dawn in Born Yesterday?

M.F.: I can't say that I'm surprised. As you know, talent runs in the family. When the director, W. Scott Andrus, asked my advice . . .

T.N.: The director asked you . . . why you're a . . . a . . . child.

M.F.: W. Scott Andrus always consults me . . . Our minds are very similar . . . I guess you might say that I'm very old for my age.

T.N.: How old are you?

M.F.: Exactly 21 months and 18 days.

T.N.: I see. Now getting back to the director, W. Scott Andrus . . . Oh, by the way, what does the "W" stand for?

M.F.: Rye.

T.N.: Wry? . . . as in "sense of humor"?

M.F.: No . . . as in "on the rocks."

T.N.: Well . . . uh . . . let's see . . . How about you, Mr. Friedman, have you ever been on stage before?

M.F.: Of course I did assist Daddy when he was your director during Roar of the Greasepaint . . . Only you kept screaming at him . . .

T.N.: Screaming?

M.F.: Yes, Daddy would play the piano, and you would scream . . .

T.N.: I think that what you mean is "I was singing."

M.F.: Oh . . . well it sounded like screaming. I remember that I had difficulty burping after those sessions.



T.N.: Tell us, Mr. Friedman . . . uh, may I call you Michael?

M.F.: If you must . . .

T.N.: How do you think that you and your father will spend those long, lonely nights that your mother will be away at rehearsals?

M.F.: I'm quite used to them. Mother was in C.H.P.'s The Music Man last year, so I know exactly what to expect.

T.N.: Oh, . . . what's that?

M.F.: Daddy will be very helpful at first. Then, he'll become bored and start to practice his old juggling act; then . . .

T.N.: Juggling act?

M.F.: Yes, Daddy was originally a juggler for an underground circus in Lebanon; but after he missed a few juggles, he became a programmer at Math. It's really quite . . . I'd rather not go into it right now . . .

T.N.: The missed juggles?

M.F.: No, his programming at Math.

T.N.: Well, that's all we have time for right now . . . I'd like to thank you for this truly informative interview. . .

M.F.: It's really been my pleasure . . . maybe we can do it again sometime . . . but not for a while . . . I'm busy writing a play at the moment for the BERA Theatre Group . . .

T.N.: That does sound exciting. Well, thank you very much.

Classified Advertisements

Autos & Auto Supplies

59 SAAB - Model 93B. Best offer. Karl, Ext. 2585.
 BENTLEY - \$3750. Windschauer, Ext. 2218.
 53 CHEVROLET BELAIR - Good engine & auto trans, good radio, fair tires, poor rear end, fair body. \$75. G. Skarka, Ext. 476.
 63 VOLKSWAGEN - Sunroof, radio, good cond. Asking \$650. C. Neuls, Ext. 7222.
 2 TIRES - 8.15x15, purchased in April. Cost \$72, will sell for \$40. G. Skarka, Ext. 476.
 66 VOLKSWAGEN BUS - Blue & white, 14,000 mi, tinted glass, seat belts, perfect cond. \$1650. GR5-5863 after 6 p.m.
 53 CHEVROLET - Auto trans, 2 dr, runs well, will provide reliable trans. \$75 or highest bidder. J. Forrest, 2821.
 65 TURNER - Low mileage, excel cond, take over payments. Lydia, Ext. 7444, AT6-3962 after 5:30.
 63 CRUISAMATIC TRANS FOR A FORD - Complete w/floor shift & torq conv, almost new, will guarantee. \$75. Bob, Ext. 7769, 298-8509.
 62 HONDA - 55cc, good cond, helmet, end-of-season special. \$75. 286-8234 after 6 p.m.
 61 MERCURY MONTEREY - 4 dr hard top, black, auto trans, r/h, V8, good cond. 325-0567 after 6 p.m.
 58 BUICK SUPER - 4 dr hard top, ps/pb, r/h, good cond. Ext. 2274, HR2-1082.
 57 CHEVROLET BELAIR - 4 dr hard top, in running cond. \$75. R. Kowalski, Ext. 2314.
 53 & 59 MARK SERIES JAGUARS - 4 dr sedans, each needs motor work. Name your price. Bill, Ext. 2126.
 64 DODGE DART - 4 dr sedan, r/h, 6 cyl, auto, needs motor work, 5 new tires. \$400. Bill, Ext. 2126.
 67 FORD LTD - Aqua, black vinyl top, air cond, less than 3000 mi. \$3150. Kathy, Ext. 7503.
 54 MERCEDES MODEL 300 - Restored. Asking \$1800. G. Leistman, AT6-0456.
 REAR BUMPER MOTORCYCLE CARRIER - \$15. J. Keegan, Ext. 7216.
 MG-TD CLASSIC - New upholstery, side screens, folding top, hardtop for winter use, heater, A-1 mechanically. B. Waters, Ext. 7248.
 SNOW TIRES - 2-7.00x13, Firestone blackwalls, less than 5000 mi; 1 regular tire, 6.50x13 whitewall, less than 2000 mi. \$10 each. Dori, Ext. 2180.
 8.25x14 TIRES - Mobil, used 600 mi. Cost \$108, sell for \$65. 281-6732.
 57 OLDSMOBILE 88 - Auto, r/h, hard top, needs muffler. \$50. 281-6732.
 54 CHEVROLET 1/2 TON PICKUP - New brakes, shocks, 5 good tires, recent tune-up. \$150. 281-6732.
 56 MERCURY - 4 dr hard top, good cond, valves noisy. \$30. Carl, Ext. 7222.
 66 VOLKSWAGEN - \$1300. Ed, Ext. 6767, HA3-0584 after 6 p.m.
 58 CHEVROLET STATION WAGON - Still running. Will sacrifice for \$50. Ext. 7426.
 62 OLDSMOBILE 88 - Ps/ph, r/h, air cond, 52,000 mi, excel cond, lt blue. \$695. Ext. 7018, AT6-1358.

66 NSU PRINZ "1000" SEDAN - 1 owner, like new, honest 32 mpg on regular gas, fast, dependable. \$1295. Bill, Ext. 2393, 724-3035.

67 VOLKSWAGEN - White w/black interior, r/h, back & front safety belts. \$1560. 281-7765 eves or Sun.

63 RENAULT DAUPHINE - Excel cond, 4 good tires, 5 extra like new, extra parts, new brakes & battery. \$400. 744-5064.

67 TEMPEST CUSTOM - 2 dr hard top auto, r/h, w/w tires, OHC 6 cyl. \$2200 or \$500 & take over payments. Roger, Ext. 7356.

Boats & Marine Supplies

8' PRAM - Mahogany, oars, 2 hp Sears outboard engine. \$95. V. Abbruscato, Ext. 481.

LAST CHANCE - 18' LYMAN SKIFF - W/60 hp Gray Marine engine & most of the goodies, end of season. \$550 or best offer. E. Amos, 281-6788 after 1800 hrs.

22' CABIN BOAT - Head, 2 bunks, elec bilge pump, 110 Chrysler Crown inboard, needs work. GR5-5863 after 6 p.m.

Miscellaneous

LOVE FOR SALE - Parti-color Cocker Spaniels, AKC registered, show quality, 3 mos old. \$50. IV6-3873.

GUILD GUITAR - W/carrying case, excel cond & tune, steel strings, hollow body, model A-50. \$150. G. Baker, 286-1218.

FENCE - Peeled stockade, 6x7, 2 sections, 3 posts, new but discolored. Ext. 586.

GERMAN SHEPHERD PUPPY - Male, 6 wks old, AKC registered, champion blood lines. John, GR5-0126 after 7 p.m.

KENMORE WASHER - 8 yrs old, good cond. \$25. Friedes, 744-5431.

2 ELEC STOVES - 36"; Cold Spot refrigerator. Best reasonable offer. YA4-3362.

PLAYPEN - Wood, \$5; elec coffee pot, \$4; mail box, never used, \$2. 744-2480.

CLARINET - B-flat Evette & Schaeffer (Paris, France), excel cond. \$40. Ext. 7629.

TRAILER HITCH - 2" ball for '61-'64 Mercury, used once. New \$18, sell for \$10. V. Abbruscato Ext. 481.

ROTO-BROIL - "Capri" rotisseries, broils, bakes, king size, good cond, may see on site. Price arranged. Ext. 515, 10 a.m.- 10 p.m.

FLUTE - Selmer-Bundy, excel cond, w/case & some music. \$100. 473-1961.

PENTAX - Clip on meter, 50 & 105 mm auto lenses, set of 3 close-up lenses. Asking \$110. Walt, Ext. 7215.

TWIN BASIN KITCHEN SINK - American Standard, 42" w/rim, excel. \$10. G. Spira, Ext. 2406.

7 DAY PASSPORT TO EXPO '67 - \$5. P. Reilly, Ext. 7175.

PIANO - Steinway upright, old but excel cond & tone, may be heard in apt on site. \$500. Ext. 515, 10 a.m.- 10 p.m.

CRIB & MATTRESS - \$20; baby scale, \$2; dressing table, \$5; baby swing, \$1; 12" tricycle, \$4; child's car harness. \$2. Steve, Ext. 2801.

LAWSON LOVESEAT - Upholstered, \$40; matching chair, w/ottoman, \$25; upholstered occasional chair, \$18; 2 matching mahogany drum tables, \$12 each. AT6-1186 after 6 p.m.

UPRIGHT PIANO & BENCH - \$150. HR3-0178 after 5:30.

2 EACH 9' 2 PC SURF RODS - W/302 Mitchel spinning reels, factory rebuilt last yr. \$25/pr. E. Amos, 281-6788 after 1800 hrs.

SHETLAND FLOOR SCRUBBER - Waxer & buffer, twin brushes, used very little. Orig cost \$26, now \$15. E. Amos, 281-6788 after 1800 hrs.

STEREO TAPE RECORDER - Telectro 2 & 4 track, 3 speed, needs minor repair. Orig cost \$248, \$45 firm. E. Amos, 281-6788 after 1800 hrs.

CHILD'S TRICYCLE - \$6; kitchen step chair, \$3. Matko, Ext. 613.

1966 APACHE BUFFALO - Incl everything you need to camp this weekend, canopy, dinette-bed, camp stove, tent heater, etc. HR2-1356 after 6 p.m.

GLIDER & 2 CHAIRS - Suitable for porch or patio. \$40. 286-0903.

BICYCLE - Girl's 24" frame, gold, white & silver, German made, w/w tires, lt wt. \$17. 281-6732.

BEAGLE PUPPIES - AKC registered, reasonably priced. Mac, Ext. 466, 281-9559.

COCKTAIL DRESS - Very lovely lt pink & silver brocade, size 11-12, 1/2 price, worn once. \$15. Fred, Ext. 424.

HAM RADIO STATION NCX-3 - CW, AM, SSB, AC power supply, built-in speaker, microphone, antennas. \$200. Nick, Ext. 2193.

BICYCLE - Boy's std size, lt wt, good cond. \$12. 281-6732.

TEA SET - Canadian silver plate, pot, sugar/creamer, tray, never used. Orig. \$50, sacrifice \$15. Petruk, Ext. 2142.

ATTENTION HIKING BOY SCOUTS - #547 Yucca pack w/rack. \$11 value for \$6. G. Lilja, Ext. 657.

SHEEP, GOATS, LAMB - Must sell or trade, make offer. R. Breuning, 924-8681.

HAM STATION - NCX3, complete 20-40-75m, AM, CW, SSB, AC supply, dipoles, 4 element 20 m beam. Nick, Ext. 2193.

MOVIE CAMERA - Yashica 8 mm Reflex Zoom, excel. \$60. Ext. 7704.

WATCH - Accutron Astronaut, perfect. Bought \$175, sell \$125. Ert. 7704.

PIANO - Hardman upright, action reconditioned, new keys, good tone & antique looks. \$220. Ert. 7704.

CAMERA - Auto Rolleiflex f3.5 Xenar, w/Rolleikin, Norwood exp meter, PCA electronic flash, all excel. \$160. Ext. 7704.

TRUMPET - Getzen, purchased spring '67, used very little, brand new cond, w/case & other extras. \$85. Bill, Ext. 2393, 724-3035.

ALUMINUM STORM/SCREEN WINDOWS - Self storing, 30x56, 28x54. \$4 each. Ext. 2492.

WARDROBE - Wood, 2 drs, ventilated, hat shelf, tie rack, good cond, 42x72. Ext. 2492.

COLLIE PUPS - AKC, beautiful sables, health guaranteed, 6 wks old. R. Breuning, 924-8681.

PIANO LESSONS - Ext. 2929.

CARBINE - 6.5 mm Carcano model 37, very good. \$15. M. Goldberg, Ext. 7674.

3 CAST IRON RADIATORS - 24" high w/12-15 elements each. \$2 each. Ext. 7618.

BOY'S 26" BICYCLE - Excel cond. Moe, Ext. 7423.

Houses

DEER PARK - 2 bedrms, panelled liv rm & din rm, beautifully landscaped, established area, full cellar & garage. MO7-8816.

SHOREHAM - 4 bedrm custom ranch, playrm, 2 baths, fireplace, wooded 1/2 acre, beach rights, leaving LI, will sacrifice. 744-2480.

CALVERTON - 60'x10' Expando mobile home, Kropf, 2 bedrms, 2/2 carpeting, unfurnished, priv prop 200' from lake. 727-0136 after 5:30.

PT JEFFERSON STATION - Hi-ranch, 3 bedrms, eat in kitchen, playrm, 1 1/2 baths, near shopping. \$17,500. HR3-3208.

WADING RIVER - 2 bedrm ranch, ww carpeting, baseboard hw heat, double garage, full basement can be finished for add bedrms, 130x150, schools, etc 1/2 mi. 929-4714.

EAST SETAUKET - Split level, 7 rms, 3 bedrms, 1 1/2 baths, fam rm, util rm, basement, garage, s/s, fully landscaped, 1/2 acre wooded lot. Walter, 473-2673.

BROOKHAVEN VILLAGE - Waterfront colonial, 3 bedrms, panelled liv rm & den, breakfast rm, din rm,

1/2 baths, dble garage, bulkheaded dock, 1/2 acre. \$33,000. AT6-0322.

PT JEFFERSON STATION - 4 bedrm high ranch on wooded 1/2 acre, liv rm, din rm, panelled kitchen & den, 20' dining deck, laundry rm, dble garage, 2 baths, s/s, w/w carpet. \$20,500. HR3-9180.

For Rent

2 BEDRM HOUSE - Deer Park, good location, beautifully treed & landscaped, perfect for sm business, tiled & panelled interior, simul brick ext. 667-8816.

2 BEDRM HOUSE - Lake Ronkonkoma, garage, nice location, close to town, unfurnished. \$125/mo. JU8-9501.

9 RM COLONIAL - Garage, Bellport Village area, new. \$200/mo w/option to buy. AT6-9591.

4 BEDRM RANCH - Shoreham, playrm, 2 baths, fireplace, sun deck, 2 car garage, air cond, wooded 1/2 acre, beach rights. 744-2480.

FURNISHED RM - Lg, modern w/priv bath, some kitchen privileges, 10 min to Lab. 281-5068.

2 BEDRM HOUSE - Bellport, garage, porch, cellar, hot water heat, big yard. Mrs. M. Borruso, AT6-8783.

2 1/2 RM APT - Furnished, priv entrance, util, lease, Bellport Village. \$105/mo. 286-8850.

Wanted

SILVER DOLLARS - \$1.40; silver certificates, \$1, \$2, \$5, 20% over face value, any amt. S. Wagner, Ext. 618.

TYPING TO BE DONE AT HOME - J. Baldwin, AT9-1568.

M1 CARBINE - Good to excel cond. G. Spira, Ext. 2406.

JR GIRL SCOUT UNIFORM - Size 10, &/or leader's uniform, size 12. G. Riker, 281-5565.

ROOM AIR HUMIDIFIER - Good cond, reasonable. C. Hull, 744-5969.

SNOW PLOW - For a jeep. Jerry, Ext. 2117 after 4 p.m., 475-5196 days.

HOMES - For white mice, male or female, have both. W. Winsche, Ext. 2705, AT6-0514.

TIRES - 7.60x15, snows & regulars, 2 each (will buy single tires). Strongson, Ext. 2727, 281-5141.

HOME - For 11 wk old black & white female kitten, semi-long hair, trained. Uphoff, AT6-9602.

Carpools

DRIVER WANTED - To complete 5 man carpool from Patchogue area. R. Scalzo, Ext. 2180.

4 MAN CARPOOL - Needs 1 driver to complete, from Wantagh area. N. Schumburg, Ext. 2579.

DRIVER WANTED - To complete carpool from Pt Jefferson Station, vicinity of Heatherwood Apts or Charm Village. S. Cutler, Ext. 7341.

RIDER/DRIVER - Wanted to fill 5 man carpool from Patchogue. B. Macleod, Ext. 2380, GR5-7694 after 5:30.

WANTS TO JOIN OR ESTABLISH - Carpool from E. Bay Shore, Islip Area-Union Blvd. J. Hooper Ext. 2824.

WOULD LIKE TO JOIN OR FORM - Carpool from Pt Jeff. Dick, Ext. 7180.

DRIVER WANTED - To complete existing 5 member carpool from Riverhead. Pat, Ext. 7691.

PAYING RIDER - From Northport-E Northport area. Diane, Ext. 7778.

1 OR 2 DRIVERS/CAR - To join 3 man carpool from Massapequa (Bar Harbor). Dave, Ext. 2554.

Classified Ad Policy:

- The Bulletin Board's classified section may be used only by active and retired Laboratory employees.
- All items for sale or rent must be the advertiser's property.
- Persons listing houses, apartments, or rooms for sale or rent, do so with the understanding that these must be available without regard to race, creed, color, or national origin.
- Ads associated with a full- or part-time business cannot be accepted.
- Ads should be restricted to 20 words or less and typed or

printed on the form provided. (Additional copies of the form are available at the Bulletin Board office.) Twelve noon on Friday is the deadline for inclusion in the following week's issue.

6. Ads are run on a space-available basis; those not carried because of space restrictions will be held for inclusion in the next issue.

7. Ads are run only once and must be resubmitted if they are to be repeated.

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|--|---|--|
| <input type="checkbox"/> For Sale: Auto & Auto Supplies | <input type="checkbox"/> For Sale: Houses | <input type="checkbox"/> Carpools |
| <input type="checkbox"/> For Sale: Boats & Marine Supplies | <input type="checkbox"/> For Rent | Check <input checked="" type="checkbox"/> the heading applying to your ad. |
| <input type="checkbox"/> For Sale: Miscellaneous | <input type="checkbox"/> Wanted | Print or type your ad in 20 words or less. |

(Name & Phone No. To Call)

If this ad concerns housing for sale or rent, such housing is available without regard to race, creed, color, or national origin.

Employee's Signature _____ Life No. _____ Ext. _____

Send to: BULLETIN BOARD, 40 Brookhaven Avenue