



Test Tube Plants Grown At BNL

For the first time, a mature hybrid plant has been grown from fused genetic cells of two different species, completely circumventing the normal sexual and reproductive processes. The new method, called parasexual hybridization, was developed by biologists at Brookhaven National Laboratory. Although cells have been fused before, they have remained only as cells. The new result represents the first known case where an entire organism of any higher order of life has been produced by combining two different species in this way.

The new technique was developed by research biologists Dr. Peter S. Carlson, Dr. Harold H. Smith, and Rosemarie D. Dearing, and is reported in the August issue of the Proceedings of the National Academy of Science, under the title "Parasexual Interspecific Plant Hybridization." The BNL method involves the combining of genetic information contained in cells of different species to generate viable hybrid cells having new genetic characteristics, then inducing the new cells to grow into a mature plant.

The standard genetic method of producing a hybrid is by cross-pollinating mature plants. Most sexual crosses between different plant species do not yield live or fertile offspring since plants as well as animals have specific mechanisms to insure that fertilization with reproductive ability occurs only between individuals of the same species.

The new technique of parasexual hybridization circumvents many of these natural barriers to intergenetic reproduction, and opens the potential of cross fertilization at the cellular level between widely divergent plant species. The Brookhaven success represents the application of results from three widely separated basic research programs. 1) Plants of the same species had previously been grown from wall-less cells in Japan. 2) The fusing of wall-less cells had been done in England, but they remained as cells. 3) In their own laboratory at BNL, the biologists had developed a technique to select from millions of viable cells the few that had the desired hybrid characteristics. The final parasexually produced hybrid at BNL is extremely significant to agriculture because it represents the potential for genetically developing totally new crop species or the modification of existing species having improved yield, resistance to disease, etc. For example, one can imagine that it might be possible to devise plants which produce edible food above ground and an edible root below ground. This would cause our present concepts of world food production to be changed markedly.

The biologists emphasize that use of parasexual hybridization to produce new crop varieties requires more development. Dr. Carlson stated, however, that "The remaining problems are technical rather than theoretical. We know what can be done using a model system. Now the crucial task is to characterize the special requirements of the individual species and hybrid desired from parasexual reproduction."

At Brookhaven National Laboratory, the scientists used two species of tobacco plants that had previously been hybridized by standard genetic crosses, thus providing a basis for comparison with the hybrid produced by the new parasexual method. The plants produced by both methods were identical in all respects.

Using two species of tobacco (*Nicotiana glauca* and *N. langsdorffii*), large numbers of leaf cells were isolated and the cellulose walls which surround these cells were removed by enzymatic digestion. Many of these wall-less cells (protoplasts) were then fused following simple chemical manipulations. The resulting mixed population of normal and fused protoplasts was placed in a regenerative culture medium which would only support the growth of the fused cells containing the desired hybrid genetic information. The fused cells which grew into colonies were then removed from the regenerative medium and placed in another medium completely devoid of hor-



Harold H. Smith (left), Peter Carlson and Rosemarie Dearing look at flasks containing tobacco plant cell cultures.

Rosemarie's Baby

"It still amazes me," said Rosemarie Dearing enthusiastically while looking at the strange plant she helped to create, the result of a parasexual cross between two different species of tobacco. She worked with Peter Carlson and Harold H. Smith on the project and was the one most responsible for the "leg-work" involved.

The hardest and most tedious part she says was peeling the tobacco leaves. For days she would sit peeling the leaf surfaces away from the veins, which must be done slowly and carefully. Sometimes this would be for two to three hours at a time, and she would end up with an aching back, neck and shoulders. Occasionally she would get frustrated and impatient after long hours and just get fed up, and return the next day in better spirits to continue again.

The peeled leaves were chopped up and put into an enzyme solution to break down the cellulose walls surrounding the cells. The solution containing the wall-less cells (protoplasts) was centrifuged, causing the protoplasts from the two different species to fuse. The fused protoplasts were put on a regenerative agar medium which permitted only those protoplasts containing the genetic material from both parents to grow. From here they were transferred to another medium where they developed into calli (an aggregate of cells). When the calli were developed enough, usually after two to three months, they were grafted onto the cut stem of one of the parent species.

Rosemarie grafted many calli before one developed into the desired hybrid. After grafting them she put them into the "mist

room," where they could receive the quantity of moisture they needed to grow. This is a specially designed area with pipes which spray a very fine mist of water at constant periodic intervals. Although the room does have its advantages, it also has drawbacks for those who enter it. Entering the area once when the mist was off and forgetting to press down the lever which would keep it off, she found herself in the middle of an unpredicted rain shower.

Many of the plants died after a week, which was very discouraging she said, but those that survived for more than two weeks encouraged her. If they survived that long it was assumed they were responding and were transported to the regular greenhouse. Unfortunately, they began to die. Finally, it was decided to leave them in the mist room for a longer time before transporting them. This was successful and the result was the approximately five-foot hybrid presently in the greenhouse.

She said she was very excited when she saw it growing, but at the same time didn't believe it. After spending a great deal of time and care in nursing it to what it is today, she says, "It makes you feel very proud."

Rosemarie, originally from Charlottesville, Virginia, came to Brookhaven ten years ago after getting a double degree in Education and Biology at West Virginia State. After substitute teaching a high school biology class she decided teaching was not her true interest. She worked at two labs after that before coming to Brookhaven's Biology Department. She began working with Peter Carlson last October and they started working on the parasexual hybridization project in November.

Red Cross Emergency Appeal For Flood Relief

On June 21, 1972, an AEC Announcement was distributed appealing for contributions to the Red Cross to assist victims of the South Dakota flash floods. That same week tropical storm Agnes struck the East Coast causing widespread flooding in many states, especially Virginia, Maryland, New York and Pennsylvania. This disaster, on top of the relief work for the South Dakota flood victims, will require the Red Cross to expend over \$10 million in order to aid the victims. The American National Red Cross has accordingly increased its campaign goal for this national disaster from \$5 million to \$10 million, and Red Cross chapters have been asked to double their originally assigned fund raising goals.

The Red Cross informs us that approximately 112,000 refugees are housed in over 300 Red Cross shelters from Florida to New York. Thousands of Red Cross volunteers and over 300 Red Cross disaster specialists are assisting families as flood waters recede. According to Red Cross, preliminary surveys in the Mid-Atlantic States alone indicated that over 30,000 families will need extensive Red Cross help. As you can well imagine, current disaster operations in 12 states have depleted the fund which the Red Cross sets aside to meet natural disasters.

The American Red Cross has asked for additional support from Federal employees to help meet the campaign goal. While on-the-job fund-raising campaigns will not be conducted, I request the assistance of each of you most urgently. Contributions may be sent to your local Red Cross chapter or to the American National Red Cross Disaster Relief Fund, Washington, D.C. 20006.

—James R. Schlesinger,
Chairman, AEC

2000 GeV Equivalent Obtained At Cern

Meyrin Geneva: For 14 hours at the beginning of July the Intersecting Storage Rings (ISR) at CERN in Geneva produced proton collisions at a center-of-mass energy of 62.8 GeV. This is the highest center-of-mass energy ever obtained in a laboratory. It would require a proton accelerator of about 2000 GeV to obtain this center-of-mass energy with protons hitting a stationary target.

This record was achieved by using two beams of protons at 26.5 GeV from the synchrotron accelerator boosted up to 31.4 GeV by the ISR radiofrequency system. The intensity of the proton current in one beam was 0.486 Ampere, the other operating at 0.235 A.

Data gathered during the experiments are being analyzed.

Holiday Schedule Diners Please Note

The Tap Room at the Center will be open daily over the Labor Day weekend.

At the Cafeteria, only the Snack Bar will be open from 9:00 a.m. until 2:00 p.m. on Saturday, Sunday and Monday, September 2nd, 3rd and 4th.

The Vended Food Service in Building 912 will be in operation throughout the Labor Day Weekend.

mones. This procedure prohibits growth of tissue from the individual parents but allows the hybrid to form rudimentary shoots and leaves. The hybrid shoots were then grafted onto the freshly cut stems of one of the parents (*N. glauca*) where they grew into fertile, mature plants. These plants were examined for distinguishing biochemical, cytogenetic, and morphological characteristics. The hybrid produced by the fusion of two leaf cell protoplasts resembled in every respect the hybrid between the same two species produced by standard sexual techniques.

The research on parasexual hybridization is supported by the Division of Biomedical and Environmental Research, U.S. Atomic Energy Commission.

Cornell Flag Presented to Lab



The flag displayed by visiting Cornell students was given to BNL by Cornell President Dale Corson. Professor Jay Orear of Cornell University, a physicist who does research at the AGS, made the presentation to Director Maurice Goldhaber. The motto on the seal is a pledge made by Ezra Cornell when he founded the institution in 1865. It reads: "I would found an institution where any person can find any instruction in any study." It is hoped that other universities and institutions whose members use the BNL facilities will be inspired to make similar gifts to Brookhaven as a symbol of their research participation at the Laboratory.



Associate Director Vincent O'Leary addressed a meeting of the Long Island MacArthur Businessmen's Association last Friday. He briefed the audience of business executives on the research going on at BNL, then related the Laboratory's operation in terms of its economic impact on Long Island. He pointed out that BNL has an annual payroll of \$34 million, and that most of the additional money spent for supplies, services, and construction projects also stays on Long Island. O'Leary stated that BNL is and will continue to be a prime contractor to the AEC, but that increased federal attention to using AEC laboratories to solve national problems is causing an upswing in the funding by other agencies. He ended his talk by predicting a brighter future in the years ahead for BNL.

IBEW Meets August 24

Local 2230 IBEW will hold its regular monthly meeting on Thursday, August 24, at 8 p.m. in the K of C Hall, Railroad Avenue, Patchogue. There will also be an afternoon meeting for shift workers at 2 p.m. in the Union Office at 31 Oak Street, Patchogue.

On the agenda will be regular business, committee reports, and the President's report.



A reporter and a radio announcer interview O'Leary after his presentation to Long Island Businessmen at MacArthur Airport on Friday.

Proton Radiotherapy Conference



Two dozen scientists gathered at Brookhaven last Wednesday and Thursday to explore the advantages of proton radiation in radiotherapy. The two-day conference was held in Berkner Hall and was organized by Medical Department Chairman Eugene Cronkite and John Archambeau, Director of Radiation Therapy at Nassau County Medical Center. Among conference attendees were: (L to R) Victor P. Bond, BNL Associate Director for Life Sciences; Fred Mills, Chairman of BNL's Accelerator Department; Dr. Harald Rossi, Radiological Research Laboratory, Columbia U. College of Physicians and Surgeons; Dr. Simon Kramer, Department of Radiation Therapy, Thomas Jefferson University Hospital; and Dr. Raul Mercado, Jr., Department of Health, Education and Welfare, National Institutes of Health.



John O. Archambeau, first speaker and co-organizer of the conference (right) chats with George Wheeler, Division of Physical Research, USAEC.

Soccer Notice

There will be no soccer practice until Monday, September 11.

"Our Concert" Tonight

The final concert in the BERA Summer Concert Series will be a light classical program featuring performers drawn from BNL employees and their families.

Centered around the fine soprano voices of Elisabeth Palmedo and Helen Wilkinson, the evening will be varied both in composers represented and instruments played.

Special attractions will be the performances by two young pianists, Mee-Hee Oh (11 yrs.), daughter of Yang Oh (Medical); and Steven Month (13 yrs.), whose father is a member of the Accelerator Department. Carol Kuczynski (parents in P.E.P. and Fiscal) will play solo flute, and be joined by flutists Hope Roesch (father in Physics) and soprano, in Bach's well-known aria "Sheep May Safely Graze."

David Alburger (Physics) and Jack Schmidt (Medical) provide viola and oboe accompaniments to the voices, along with Ann Jupp (Piano).

Hear these talented musicians tonight, August 17th, in Berkner Hall, beginning 8:30 p.m. Admission, which includes refreshments, is \$1.50 for adults and free under 18.

Jazz Festival Visits Bellport

International Art of Jazz moves its summer festival of free jazz concerts to Bellport on Sunday, August 20th. The Billy Mitchell Septet, featuring Dakota Staton and Bo-Didley, Jr. will be at the Hampton Avenue School on Brookhaven Avenue in Bellport from 4 to 6 p.m. The program is sponsored by the Brookhaven Council on the Arts, Long Island Lighting Company, Abraham & Straus, the Islip Department of Community Affairs, the Presbytery of L.I. and the Diocesan Task Force. IAJ is partially funded by the New York State Council on the Arts.

The Bellport concert marks Billy Mitchell's second appearance in the summer concert series. The group's appearance last month in Gordon Heights brought a record turnout of residents and jazz lovers from all over Long Island. The Septet includes Charles McLean - piano; Arvell Shaw - bass; Ted Dunbar - guitar; Percy Bryce - drums; Stevie Lloyd - congas; Dave Burns - trumpet. In addition to the leader on tenor and soprano saxophones, songstress Dakota Staton and blues guitarist Bo-Didley, Jr. complete the exciting ensemble.

The 4 p.m. concert will be held outdoors at the Hampton Avenue School on Brookhaven Avenue, about 1/2 mile east of Station Rd. in Bellport. Audiences are urged to bring blankets or chairs for their listening comfort. For further information, call (516) 261-5582 or 277-2057.

Arrivals & Departures

Arrivals

Christopher J. Hamer.....Physics
John C. Norvell.....Biology

Departures

Eric W. Anderson.....Physics
John H. Crump, Jr.Physics
James M. Galligan.....Applied Science
David G. Hill.....Physics
Hugh Isaacs.....Applied Science
Richard A. Johnson.....Chemistry
Paul M. Mockett.....Physics
Arthur T. Plichta.....Physics
Peter H. Rich.....Biology
Edward E. Sives.....P.E.P.

Bowling Next Month

As you've seen, all the details about joining the BNL bowling leagues have been distributed and posted throughout the site.

The deadline for signing up is supposed to be tomorrow. However, that doesn't let you out. We still have room for men and ladies in our leagues. In some cases we have room for full teams. The men and ladies will be bowling on Tuesday at Port Jefferson Bowl, while the mixed league will be at Port Jefferson on Wednesday or Oakdale on Thursday.

Cafeteria Menu

Week Ending August 24, 1972

Friday, August 18	
Fish Chowder	
Fried Fillets of Sole w/Tartar Sauce & French Fries	.95
Codfish Cakes & Spaghetti w/Tomato Sauce	.85
Baked Beef Loaf w/Gravy & 1 Veg.	.90
Monday, August 21	
Cream of Mushroom Soup	
Breaded Pork Chop & 1 Veg.	.95
Beef Ravioli w/Parmesan Cheese & 1 Veg.	.90
Beef Livers Smothered w/Onions & 1 Veg.	.85
Tuesday, August 22	
French Onion Soup	
Salisbury Steak w/Brown Gravy & 1 Veg.	.90
Frankfurters Rolled in Bacon w/Baked Beans & Cole Slaw	.85
Sliced Turkey & Stuffing w/Cranberry Sauce, Giblet Gravy & 1 Veg.	.90
Wednesday, August 23	
Vegetable Soup	
Chinese Pepper Steak on Rice	.90
Old Fashioned Chicken Pie w/Biscuit Crust	.95
Flounder Stuffed w/Crabmeat & Tartar Sauce & 1 Veg.	.90
Thursday, August 24	
Turkey Noodle Soup	
Grilled Monte Cristo Sandwich & Pickled Beets	.85
Veal Patty w/Noodles Oregano	.85
Braised Beef a la Mode & 1 Veg.	.95

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CARL R. THIEN, *Editor*
CLAIRE LAMBERTI, *Editorial Assistant*

40 Brookhaven Ave. Upton, N.Y. 11973
Telephone 516 345-2345

NORBERT J. DERNBACH
Public Relations Officer

Touch Football League Forming

We have designed a non contact football game that even you can play and enjoy. There's no tackling, no blocking, no roughhousing. This 6 man team game is basically all passing and running. A Johnny Unitas you do not have to be. All you need to join is enthusiasm and a pair of sneakers.

You need at least 6 men to enter a team but may have up to 10. Round up your Suffolk Super Stars and join the action. The games are played at our recreation park immediately after work starting September 11 and ending in mid October.

Pick up your entry form and a copy of the rules at the Recreation Office. If you can't join an existing club or form your own, send your name to any of the committee members and they will place you on a roster.

Pres.	Bob Barone	4174	515
Vice Pres.	Ed Taylor	4126	515
	Jack Brennan	2485	134C

Tennis News

There has been considerable progress in the BERA Tennis Tournament during the past two weeks. Despite the tennis committee's efforts to keep the tournament on schedule, we have lagged a bit (all for good reasons, of course!).

The finals in the Ladies' Singles is on schedule, with Helen Connell, first seed, meeting second seed Mary-Jane Stangby. The result will be reported in next week's Brookhaven Bulletin. Other finals are scheduled for next week.

The Walter W. Merkle Men's Doubles will be played on Monday, August 21, and Mixed Doubles on Tuesday, August 22. Playing time for all finals is at 5:15 p.m.

The results of tournament play through Monday, August 14, is reported below:

Men's Singles

First Round: Kevey-Lazareth, 6-2, 6-3; Palmedo-Levin, 6-0, 6-2; Horwitz-O'Neill, 6-0, 6-1.

Second Round: Lumpkin-Brandon, 6-1, 6-1; Palmedo-Boecker, 6-2, 6-0; Auskern-Horwitz, 6-0, 6-3.

Semifinal Round: Auskern-Palmedo, 6-1, 6-1. Before the finals can be scheduled, Kevey and Passell have to play for the honor of meeting Lumpkin to determine the finalist in the top flight.

Ladies' Singles

Second Round: Connell-Phillips, 6-0, 6-1; Abata-Auskern, 6-3, 6-2; Michael-Appel, 6-2, 6-4; Stangby-Iwai, 6-3, 6-0.

Semifinal Round: Connell-Abata, 3-6, 6-3, 6-1; Stangby-Michael, 6-1, 6-4.

Final is being played Tuesday, August 15.

Men's Doubles

First Round: Platner & Foley-Brooks & Halpin, default.

Second Round: Auskern & Kevey-Lumpkin & Passell, 6-4, 7-5; Bailey & Brandon-Platner & Foley, 6-3, 6-1; Lazareth & Scarr-Epel & Beller, 6-4, 6-2.

Semifinal Round: Bailey & Brandon-Lazareth & Scarr.

Shapiro & Rosso are meeting Auskern & Kevey this week to determine the other finalist entry for Monday's match.

Mixed Doubles

First Round: Connell & Palmedo-Mr. & Mrs. Wells, 6-0, 6-2.

Semifinal Round: Mr. & Mrs. Kevey-Mr. & Mrs. Michaels, 6-2, 6-2; Connell & Palmedo-Mr. & Mrs. Iwai, 6-2, 6-4.

The mixed doubles final match is scheduled for Tuesday, August 22.

The Pit And The Pendulum

Next-to-the-last offering in the BERA Summer Film Festival is the classic horror film adapted from Edgar Allen Poe's story. The master of horror, Vincent Price, is the star of this color special being screened at 8:30 p.m. on Friday night, August 18.

This is one of Roger Corman's most imaginative Poe adaptations. As in Corman's other horror films, there is a striking use of rich colors, plush decor and strange music, to create a Gothic atmosphere. In a gloomy castle high above the sea in 16th century Spain, the wife of a Spanish nobleman dies in strange circumstances. When her brother comes to investigate, he finds her husband (Vincent Price) going mad because he thinks she may have been entombed during a coma. In flashbacks, we see the nobleman's sadistic father (also played by Vincent Price), an official of the Spanish Inquisition, and the rest of a Charles Addams family. The dead lady's brother ends up in a torture dungeon under a giant pendulum scythe.

Admission to air-conditioned Berkner Hall is \$1.00 for adults, and half that for the under-eighteen set. The show will start promptly at 8:30 and there is always plenty of safe parking.

Hospitality News

There will be a morning coffee sponsored by the Hospitality Committee on Tuesday, August 22, from 10 a.m. to noon, in the Recreation Building in the apartment area.

Selected Reading

- Impact Sci. Soc. 22, January-June 1972
- Science, scientists and governments. 5-199
- Science 177, August 4, 1972
- NAS: A move to spruce up the quality; content of the Proceedings. B. J. Culliton. 408-10
- Sky Telescope 44, August 1972
- The Vanderbilt Planetarium. P.L. Harrison. 72-6

Happy-Nets For Youngsters

The New York Nets put on a great show at the gymnasium last Thursday for youngsters of all ages. You can not identify basketball enthusiasts by any age grouping. There were youngsters who came to see the demonstration who could barely hold a basketball and others who know all the game's fine points. They all had a good time. Joe DePre particularly demonstrated that he possessed many talents other than his basketball abilities. He measured the audience and patiently and competently demonstrated skills in a manner that was entertaining and easily understandable by all.

Special contests were held amongst the audience and many prizes were distributed to the winners. The victors went home dribbling newly acquired A.B.A. red-white-and blue basketballs. The runners-up left the gym in their new Net team hats.

Each member of the audience received a free year book and the opportunity to have it autographed. At the program's conclusion, everyone received an unannounced special treat - free soft drinks - courtesy of Dr. Pepper.

BERA Recreation Park For Swingers



You don't have to like softball, soccer or football to enjoy the facilities at the Brookhaven Employee's Recreation Park. Margaret Schubert of Photography and Graphic Arts likes to swing on the swings during a lunch-time moment of relaxation. Family groups, or office parties can use the picnic tables and grills in the woodland setting to the east of the firehouse on Brookhaven Avenue. Camping Club members frequently have group camp-outs on week-ends throughout the year in a pine-needle-carpeted grove adjacent to the athletic fields.

NET Clinic Pleases Kids



Joe DePre, 25-year old NET guard, poses with some of the winners in the foul-shooting contest which was part of the basketball clinic held at the Gym last Friday. The youngsters displayed a variety of styles for shooting fouls to try to win prizes.

Softball News

Jim Petro

Brookhaven League

Blue Jays 10 - Dirty Sox 2
Old Timers 23 - S & M 4

Blue Jays (4-1) handed the Dirty Sox (3-1) their first loss of the second half to tighten up the league race. George Oldham had 3 for 4 and Ed Meier had 2 for 3 to lead a well balanced Jay attack. Dean Easler generated what little offense the Sox had with 3 for 3. Old Timers (3-2) won in a walk as they routed S & M (0-4). Old Timers exploded for 28 hits with Mike Zguris and Les Lawrence hitting home runs.

University League

Oh Kays 10 - Saints 5
Odd Couples 15 - Gotchas 14

Oh Kays (6-0) won again as they downed the Saints. The girls excelled as Lindora Boyd made two spectacular catches in left field and Ruby Burwell hit the first home run for the girls this year. John Crump also homered for the Oh Kays. For the Saints, Tom Reisig excelled at shortstop and Dick Sutter, coming off a three week injury hit a home run. In a see-saw game the Odd Couples (3-3) beat the Gotchas (2-4). Gotchas had a big third inning with home runs by George Morgan, Bob Zizza, and Joe Vargas. Trailing in the seventh inning the Gotchas went ahead by 1 run on the second home run of the year for the girls by Betty Morgan, however, they could not hold the lead.

National League

AMD 19 - Circuits 12
Circuits 15 - AMD 8
Bio Meds 8 - Bubble Boys 3
Bio Meds 16 - Bubble Boys 3

AMD (3-2) split with the Circuits (2-2). Due to the complexities of the schedule the Circuits are now tied with AMD for the first half. In the first game, Ed Taylor and Bob Barone homered for AMD. The Circuits countered with home runs by Schmidt, Roman, Gilleeny, Greenlaw and White but still came up short. In the second game the Circuits won the must game as Schmidt had a home run again. Bob Barone had a swinging "K" to dampen the hopes of AMD at a crucial point of the game. Bio Meds (4-0) won their 7th game in a row by downing the Bubble Boys (1-4) twice. Balanced team hitting and solid defense led to the win in both games. This second game was again a first half make up for the Bio Meds where they finished at (3-3).

Laboratory League

Six Pax 22 - EAO 15
Charlie Browns 35 - Converts 14

Six Pax (6-0) clinched the second half championship by downing EAO (3-3). The Pax out-lasted EAO in a good ball game with a strong hitting game. K. Asselta (4 for 5 with 2 hr's) led the attack with Russ Lowell and Jack Baer chipping 4 hits each. George Speidell and Gary Jayne homered for EAO. Playing with only 8 men the Charlie Browns (3-3) still managed to deny the Converts (0-6) their first win of the season. F. Hohmann, V. Bilms and Bob Brown all homered for the Charlie Browns along with their many other hits. Six Pax are League Champions as they have won both halves of play.



Classified Advertisements

Employment Notices

The BROOKHAVEN BULLETIN each week will list job openings which have come to our attention and may be of interest to Lab employees. Each listing will be repeated (if still available) only once. For further information, please contact Employment Supervisor, Ext. 2879 or 2882.

MASON (1) - Plant Engrg. & Planning. Application deadline: August 28, 1972.

GENERAL FOREMAN - Refrigeration/Air Conditioning - Plant Engineering & Planning.

REFRIGERATION/AIR CONDITIONING - Foreman - Plant Engineering & Planning.

ENGINEERS - Systems Analysis - Technical Safeguards - Department of Applied Science.

SCIENTIFIC PROGRAMMER - Part time. Department of Applied Science.

COMPUTER OPERATOR - Nights. Systems & Data Processing.

Autos & Auto Supplies

70 VW BETTLE - Std trans, radio, good cond. \$1350. 475-0958.

¾ TON FORD PICKUP - 68-302 eng, auto trans, good tires, new muff, brakes, kingpin, water pump, runs well. \$550 Saxon, Ext. 3435.

64 MGB - Green, radio, runs well but needs TLC (or STP). \$350 or best offer. Charlie, Ext. 3397.

64 FORD COUNTRY SQUIRE - Inside good, new shocks & springs, mufflers, brakes, batt, body fair. Roebuck, Ext. 4428/4434.

TRAILER HITCH - Reese straight-line, 350-450 tongue weight. R. Sollcnek, Ext. 4639.

66 OLDS CUTLASS - V8, auto trans, ps/pb, 24,000 orig mi, best offer. Ext. 2911, 581-4238.

TRAILER HITCH - For 69 Chevy station wagon. \$12. Ext. 4089.

68 HILLMAN STATION WAGON (HUSKEY) - Good for parts, body OK. \$55. 878-0071 after 6.

TIRES - 8.25x14 mounted on Chevy rim, \$15; 6.75x15 mounted on Chevy rim, \$10; plenty thread. Seyfert, 928-3016.

70 Falcon - Auto trans, pwr, excel cond. \$1300. Andy, Ext. 4592.

64 CADILLAC CONV - Good cond but eng needs work. \$200. Ext. 4676.

67 MUSTANG - 6 cyl, std trans, dk green, very clean car throughout. Gene, Ext. 4670, 744-3945.

62 RAMBLER AMERICAN - Many new parts, needs trans work but runs well, 70,000 mi. \$75. Ext. 4254, 661-4508.

63 RAMBLER CLASSIC STATION WAGON - Auto trans, r/h, new brakes & exhaust syst, runs well. \$175. De, Ext. 3352, 589-4874.

VOLVO - Running cond. \$100 or best offer. 744-9686 after 6.

64 VW SEDAN - \$460. 363-2706.

66 CHEVELLE SS CONV - 38,000 mi, 396 eng, 4 spd, synchro/Hurst shifter, wide ovals on chrome rims, rear lifters, never raced. Tom, 924-6073.

67 CHEVY BISCAYNE - 2 dr, radio, overdrive, 18 mpg, excel cond. \$850. 286-8945.

64 FORD TRUCK - Econoline van, 6 cyl, auto trans. Mike, Ext. 4613

63 T-BIRD CONV - Needs water pump & tune-up. \$100. John, Ext. 4434.

51 CHEVY ½ TON PICKUP TRUCK - Fair cond. \$250. Reynolds, 286-3377 after 6.

61 CHEVY TRUCK - 4x4, motor excel shape, body needs work. \$250. 924-6598.

65 PONTIAC LEMANS - 2 dr hdtp, auto trans, ps, bkts, excel inside & out. \$475. Ext. 2023.

68 MUSTANG - White, 6 cyl, manual, good cond, avail early Oct. J. Coggins, Ext. 3379, 475-3821 eves.

71 HONDA CB100 - Excel cond. \$300. Conard, Ext. 3577, 941-4127

68 HONDA CE350 - Sissy bar, saddle bags, good cond. Conard, Ext. 3577, 941-4127.

2-15" RIMS - W/tires, 5 holes, fit Dodge & Ford. \$7. O. Booker, Ext. 4719.

68 CAMARO - 6 cyl, 230 cu in, 3 spd, FM/stereo tape, 42,000 mi, snows, must be seen in Lindenhurst. Asking \$1100. Steve, Ext. 3475.

64 CHEVY IMPALA CONV - Blk, 327 V8, mags, 4 spd Hurst, 4 new tires, tach, gauges. \$700. Claire, Ext. 2346, 281-8306 after 5.

Boats & Marine Supplies

CABIN - 18', speed ind, compass, elec start. As is, \$400. Bernie, Ext. 4783.

20 HP JOHNSON OUTBOARD MOTOR - 1966, long shaft, good cond. \$225. Ext. 4089.

ALCORT FIBERGLASS SAILFISH - Good cond. \$250. 751-3062.

17½' SAILBOAT - Best offer. Ext. 4390.

35' OCEAN GOING SLOOP - Diesel aux, fully equipped to sail anywhere. \$18,000. Forsyth, Ext. 4676, 286-9721.

CONTROL BOXES - 1 for Mercury outboard, 1 for Evinrude (Evinrude single lever elec shift). \$8 & \$12. E. Harris, Ext. 4666, 475-8504.

SAILBOAT - Outboard, trailer, 4 sails, good for beginners (will teach), has all gear for racing. \$900. 281-2605.

SEAFARER 26 - Fiberglass sloop, fully equipped w/ main, jib, ob, lifelines, galley, enclosed head, etc. \$7300. Nancy, 727-0736.

14' WOODEN DAY SAILER - W/trailer, needs work. \$30. Robert, 653-6802 after 8.

15' WINNER 1969 - Fiberglass, 40 hp Johnson, full canvas, fully equipped. \$850. Paul, Ext. 4691.

15½' THUNDERBIRD - Fiberglass tri-hull, 85 hp Evinrude elec, both 1969, pwr tilt, stainless steel prop, full cover, 1970 Tee Nee trailer, must be seen. \$2500. Ext. 2023.

COMET #2014 - 16' sailboat, fully equipped, ready to sail away. J. Coggins, Ext. 3379, 475-3821 eves.

25' AUX SLOOP - Mahog hull, 3' draft, solid keep construction, a good buy for great sailing. \$1875. Ext. 4058, 878-0642 after 6.

FABUGLAS (FIBERGLASS) BOAT - 14.5' w/40 hp Evinrude & mooring, except for seats boat & motor in good cond. Conard, Ext. 3577, 941-4127.

23' SPEEDBOAT - 1960 Century Raven, 170 hp in-board, high freeboard, shelter cabin, excel for fishing & water skiing. Orig cost \$6500, must be sold, \$700 or best offer. 286-8744.

Miscellaneous

2 CARTWHEELS - Din table 7', 55 gal elec hw heater, 2 outdoor lights, 2 sets andirons, etc. Ext. 3655, 281-2002.

GARDEN TRACTOR - 14 hp rototiller & 18" blade, used less than 75 hrs. Cost new \$2000, asking \$1450. Mel, 878-1794.

CREE TRAVEL TRAILER - 18', self-contained, 3 burner gas stove/oven, refrig, heater, excel. 325-1961.

SURFBOARD - 9½' fiberglass Malibu #564 competition model. \$25. Anne, Ext. 3381, 286-3764 eves.

FREE LOVE - From the heart of a year-old affectionate, male blk & white smiling pooch, to see is to appreciate. Leslie, Ext. 3639.

STEREO WALL UNIT - Bkcase, cabinet for TV, & bar, 7'1x6'h, walnut. Asking \$500. 878-2972.

MINIATURE POODLES - AKC reg males & females, avail 1st wk of Sept. 281-3992.

TOY POODLES - Purebred, no papers, 3 females - 1 white, 2 apricot. \$50 ea. Theresa, JU5-8862.

HEATHKIT GR-18 COLOR TV - In walnut cabinet, 5 yrs old, needs repairs. \$50. K. Fuchel, Ext. 4116.

UNIVOX ELEC GUITAR - Les Paul Model, 1 yr old, w/case. \$150. Dave, Ext. 3427.

ARTIFICIAL CHRISTMAS TREE - W/lights & stand, all new. Orig \$65, sell \$30. Roebuck, Ext. 4428/4434.

MOVING! - Castro conv sectional, \$50; 9 pc din rm set, \$100; bureau, chest-on-chest, dresser, more, cheap! 289-0624.

DIN RM SET - Maple, Early Am, table, 4 chairs, buffet, open china closet. \$150. Lee, 286-8071.

RADIATORS - 5-tube, 28"1, convector type, 3 w/ covers. \$8 ea. M. Greene, Ext. 4484.

LATEST 8 TRACK TAPES - New. \$3 ea, 2/\$5. C. Nielson, Ext. 4280, 325-0968.

LG TAPE RECORDER - \$8; fm tuner, \$5; skis, poles, boots, \$8; Bell & Howell 8 mm movie camera, \$5. Jim, 473-0288.

BICYCLE SEAT FOR CHILD - \$6. Woodwell, Ext. 3402.

GIRL'S 20" BICYCLE - \$10. Woodwell, Ext. 3402.

HOT DOG TRUCK - 1956 GMC step van, steam table, cooler, sink, cabinets, spare tire. \$1000. 581-8310.

37 GAL FISH TANK - All glass, gravel incl, \$27; mini-bike frame; 4 pc drum set, very good cond, \$125. 878-2486.

55 GAL FISH TANK & STAND - W/fish & gravel. Ext. 3499.

71 FORD CHASSIS-MOUNT CAMPER - All pwr & auto, 16' cab over body, self contained, sleeps 6, dual rear wheels, 390 cid. 475-9309.

NEW MOTORCYCLE HELMET - Blue w/bubble shield, size med, very good buy. \$30. V. DiDio, 286-0372.

PUMP ACTION SHOTGUN - New, never used, 20 gauge Rem Wingmaster #870 w/plug. \$126. J.G. Zahra, 727-7480.

POLAROID LAND CAMERA - Model 800 w/focus nob & wink light, load w/pack film, bellow type. \$75. J.G. Zahra, 727-7480.

DAY BED - Like new, neutral color print covering. \$50. 924-6728.

PIANO - Truelson upright, \$75; tricycle, 16", new cond, \$7; misc cameras & photog equipment. R. Dietz, 289-1614.

ENGLISH 3-SPD BICYCLES - 1 woman's 2 men's. \$35, \$35 & \$30. 751-3062.

CLAIROL INSTANT HAIRSETTER - & conditioner, custom care deluxe model, used once. New \$24, sell \$12. Ext. 4622.

BLONDE FROSTED HUMAN HAIR WIG - \$50. Like new, orig cost \$195, try it on. Ext. 4622.

RUG - 10x11 wool, beige, clean. \$40. 475-4875.

SEWING MACHINE - Remington portable w/auto zig-zag, embroidery discs & all attachments. New \$330, asking \$70. Ext. 4333.

BOW - Groves Spitfire deluxe, 30 lbs at 30", 10A1 arrows, quiver, etc. Ext. 4333.

SPINET PIANO - Janssen, oiled walnut, mod design. \$400 firm. Ext. 4333.

FREE NYLON SHEETS - 1 pr twin size gold, 1 pr dbl blue. Call Monday, Marge, Ext. 3394.

POOL TABLE - 4x7 solid slate bed, Belgium balls, regulation, 9 mos old, excel cond. Tom, Ext. 3305.

INVALID STAIR GLIDE ELEVATOR CHAIR - Cost new \$1000, sell \$300. 298-8555.

ROLL AWAY BED - W/matt, \$10; walnut din rm set, \$350. J. Titmus, 878-0159.

TUBE TESTER - Conar model 221, new cond, w/ adapters for picture tubes, also adaptable to test color tubes, all instructions incl. \$48. G.F. Buhl, 744-2506.

20 GAL FISH TANK - W/stand, \$20; also several 10 gal tanks w/light & heater, \$6 ea. 924-5091, 878-0159.

AUTO STEREO TAPE DECK - \$25; 2 drawer metal file cabinet, \$10; antique victrola in running cond. 924-5091, 878-0159.

LATHE - 6" Craftsman, \$40; elec pwr mower, \$10; spinet desk & chair, \$40. 475-9428.

PIANO - Kohler-Campbell console & bench, walnut finish, full length strings & keyboard, nearly brand new. 286-8092.

GUITAR - Guild 6- string, hollow body. Orig \$550, asking \$125. J. Ridgeway, Ext. 4512 Mon, Tues, Wed; 473-1154 eves.

2 FOLDING COTS - 1 alum, \$10; 1 steel, \$15. Ext. 2452.

GARRARD CHANGER - W/cartridge, base & dust cover, needs cleaning. \$20. Paul, Ext. 4046.

DIN RM-LIMITED SPACE? - Teak hutch, table seats 8, 4 teak/blk naugahyde chairs. \$250 for all. Chuck, Ext. 4477.

MINI-POODLES - AKC reg males & females, avail 9/1. 281-3992.

2 CAST IRON RADIATORS - 1-14", 1-21". Both/\$20. Bob, 473-3987.

SPRINGER SPANIELS - AKC, male & female, liver & white, blk & white, for field & show. 924-4865.

GE PORTABLE STEREO - W/speakers, solid state, 4 spd auto changer, like new. \$35. Ext. 3640.

BRUNNING CONVERTIBLE WYE LEVEL - 15 min horizontal vernier, heavy duty tripod, plumb bob. \$95. Ext. 4058, 286-0436.

SEARS FARM SERVICE TRANSIT - New w/case, tripod, instructions, plumb bob. \$130 value for \$80. Ext. 4058, 286-0436.

MAKE-UP MIRROR - Never used, incl carrying case & 2-way mirror. Orig price \$30, selling price, \$15. Michelle, Ext. 3155.

BEAUTIFUL FEMALE KITTENS - Need home; free male & female puppies. Ext. 3843.

1-8 LB CAN MICROMET - Ext. 4251.

MODEL AIRPLANE ENG - Enya company, size 0.19 cu in, factory hand lapped, w/muff, new cond. \$15. Ext. 4240.

ANTIQUÉ (?) CHINA CLOSET - Glass on 3 sides. Neal, Ext. 3050.

LIGHTING FIXTURE - Mod 3 globe, white & gold hanging lights for din rm or foyer. Orig \$39, like new for \$20. Ext. 4156.

WOODEN CHINA CABINET - \$15; kitchen util cabinet, \$4; sm bookcase, \$3; baby swingomatic, ironing board, other items. Connolly, 286-8731.

VACUUM CLEANER - \$10; typewriter chair, \$10; pole lamps, \$4; metal clothes rack, \$5; sm end table, \$4. Connolly, 286-8731.

MAYTAG WRINGER WASHING MACHINE - W/ wash tubs, excel cond, ideal for summer home. 981-1981.

CHURCHILL STEREO CABINET - 60"1, w/compo-nents, Garrard turntable, am/fm radio, speakers. \$125. 924-4261 after 5.

COLONIAL SOFA - W/extra slipcover, excel cond, \$125; 12x14 braided rug, mahog/gold/white, \$50. Lesley, Ext. 3412.

HOUSEHOLD FURN - 2 compl bedrm sets, liv rm & din rm sets. Chandra, Ext. 3844, 473-7470 after 6.

PERSIAN KITTEN - 10 wks old, male silver, CFA reg. 929-4631.

SILVER CERTIFICATES - National Geographic magazines. O. Booker, Ext. 4719.

BUCO MOTORCYCLE HELMET - White w/blk stripe, practically new (worn 6 times). \$15. Ott, Ext. 4046.

HOTPOINT REFRIG - 10 cu ft, new door gaskets, old but very good cond. \$35. Bob, Ext. 4678.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Sale

MASTIC - Mod 3 bedrm ranch on shaded 100x140 corner lot, compl fenced, full bsmt & garage, quiet neighborhood, near shopping, 8 mi from Lab, priced to sell. 281-4371 for appointment.

CENTER MORICHES - 2 bedrm ranch, carport & bsmt, priv beach. \$23,000. 929-4631.

BELLPORT VILLAGE - 3 bedrms, study, play rm, 1½ baths, bsmt, garage, breezeway, walk to golf, tennis, village ferry to Fire Island. 286-8849.

CENTER MORICHES - ½ acre corner wooded lot, 1 block to beach & boat launching. W. Lundgren, Ext. 4278, 585-3794.

For Rent

STONY BROOK - 4 bedrm ranch, air cond, all appliances, fenced yard. Ext. 2406.

ROCKY PT - Fully furn 7 rm house, 2 bedrms, studio rm, Florida rm, fireplace, garage, pool, good location. 744-2327.

BELLPORT - Luxurious waterfront house, landscaped, beach & dock, paddle tennis/skating court, fully furn, liv, in, 4 bedrms, study, kitchen, new washer, drier, dishwasher, avail 9/15-6/15. \$375/mo. 286-8744.

Wanted

1 TRAILER PROPANE TANK - J. Zahra, 727-7480.

REFRIG W/FREEZER COMBINED - Not self-defrost. Ext. 3655, 281-2002.

SAILFISH OR SUNFISH - Used. T. Morris, 744-5096.

SOMEONE TO SUBLEASE - Sept-Feb w/renewal option, furn 2 bedrm apt w/garage, Miller Place. \$225/mo incl util. Judy, Ext. 3477, 473-8059.

VERY FIRM FOAM RUBBER MATT - & box spring, in good cond. 286-8724.

HOME - For 4 yr old male German Shepherd watchdog, amiable disposition. 924-3622.

GARAGE SPACE - To store car for 10 mos at reasonable rent. Ext. 3871.

HOMES - For 4 unusually pretty kittens, now 4½ wks old, ready next wk. 732-3135.

CAMPING EQUIPMENT - Propane lantern, heater, refrig, cylinder & conversion hose kit, cabin tent 12x10, din canopy 12x12, tent trailer. 473-4477.

OLD MANUAL TYPEWRITER - For children to play. Ext. 3768, 698-1363 after 6.

TO BUY HOME - In good cond, 3 bedrms, 2 baths, about 1 acre lot, N. Patchogue to Brookhaven hamlet vicinity, principals only. 286-9431.

FRIENDLY, PLAYFUL KITTENS - K. Fuchel, Ext. 4116.

IN SEPT/OCT - Sm house to rent yr-round in Ronk/Smithtown area, 3 adults, no pets, reasonable rent. Ruth, Ext. 4106.

REFRIG - Freezer, couch, air cond, vanity, kitchen sink & cabinets, stove. 286-9788.

4/0 FISHING REEL - H.D. fishing pole. 878-0071 after 6.

6 GAL OUTBOARD FUEL TANKS - Johnson or Evinrude. 878-0071 after 6.

BOAT TRAILER - Suitable for 15' fiberglass outboard. B. Sampson, Ext. 3517.

LOVING ATTENTIVE PERSON - To care for 7 mo old - all day, 5 yr old - ½ day, beginning 9/11. Call 617-773-9679 collect by 8/23, or Ext. 3727.

Services

GARAGE SALE - TV, beds, clothes, bks, etc., due to moving, open every weekend during Aug, 1179 Wm Floyd Pkwy, between Sunrise & Expwy. Ext. 3600.

CLEAN-UP SERVICE - Yards, cellars, attics cleaned; odd jobs; light painting. Joe, Ext. 2164.

CHARTER FLIGHTS - Business or pleasure, commercial pilot w/comfortable, well equipped airplane. Doris, Ext. 2441; Lou, 281-3423.

OAK FIREPLACE LOGS - Custom cut, split, delivered & stacked, well seasoned. Ken, 289-8212 eves.

TREE REMOVAL & CHAIN SAW WORK - Also light hauling, free estimates. Ken, 289-8212 eves.

COUPLES OR GROUPS TO 6 - Evening cruises w/ licensed captain out of E. Hampton, dinner res. avail. John, Ext. 4666, 588-0619.

CHARTER FISHING - Out of E. Hampton, day or eve. John, Ext. 4666, 588-0619 for res.

HAVING AN AFFAIR-NEED TRANSPORTATION? Limousine avail, reasonable, courteous service. Bob, 473-3987.

FLOOR WAXING-CLEANING - 289-6692.

ZENITH PORTABLE TV'S REPAIRED - \$5 plus parts. Pete, Ext. 4434.

Classified Ad Policy

Deadline is 12 noon Friday for publication the following week.

1. The Brookhaven Bulletin's classified section may be used only