

Visitors' Days Are Rescheduled For Spring

The Laboratory will not hold Visitors' Days this Fall. The need to prepare fresh exhibits, to create displays about the new programs in energy and the environment, and to resolve scheduling conflicts with college entrance examinations held on many Saturdays in the Fall contributed to this decision. It is likely that Visitors' Days will be scheduled for the Spring of 1975.

Suggestions are most welcome as to how best to provide tours, exhibits and information about the various and rapidly developing research programs at Brookhaven. Your comments are solicited. Contact the Public Information Office, or directly call Carl Thien, Ext. 2345; Virginia Sayre, Ext. 3364; or R.C. Anderson, Ext. 3336.

Veterans Day

In January, the official 1974 holiday schedule was distributed to all employees. Veterans Day was indicated as Monday, October 28.

Recently Governor Wilson designated November 11 as Veterans Day for New York State. This change will not affect the Laboratory holiday schedule since many employees have made plans for the weekend in October.

Consequently, Monday, October 28 will be observed as Veterans Day.

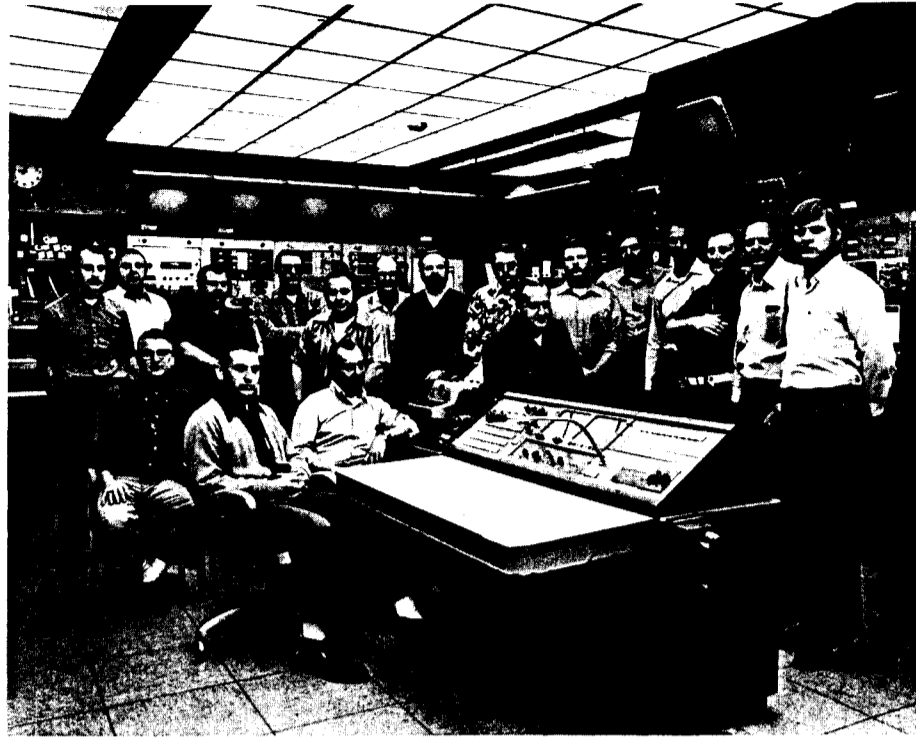
Botanist To Speak

Dr. Clarence Gordon, Director of Environmental Studies at the University of Montana in Missoula, will lecture in the Chemistry Seminar Room at 1:30 p.m. October 14.

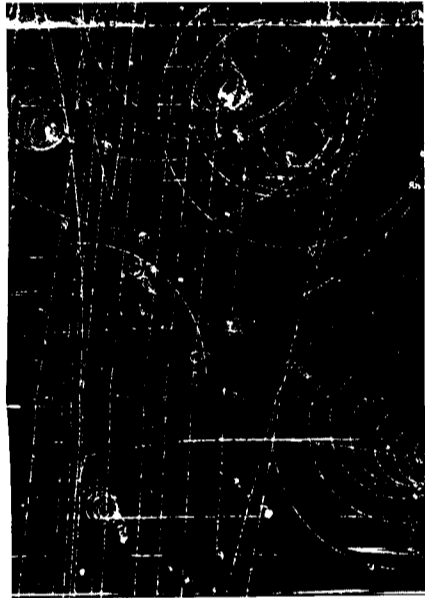
The title of Dr. Gordon's lecture will be "Impact of Coal Fired Power Plant Emissions on the Species of Flora and Fauna." The lecturer, a professor of Botany, will speak on his work with the effects of chemical pollutants on the biosphere. He has done research for the Environmental Protection Agency to investigate the pathology of certain coniferous trees using micrographic techniques. Dr. Gordon has done field work in Glacier National Park as well as Christmas tree farms in the southeastern United States.

It is felt that Dr. Gordon's work may have specific relevance to the determination and evaluation of environmental impact by providing badly needed biological indicators of pollutants, particularly those of non-radioactive origin.

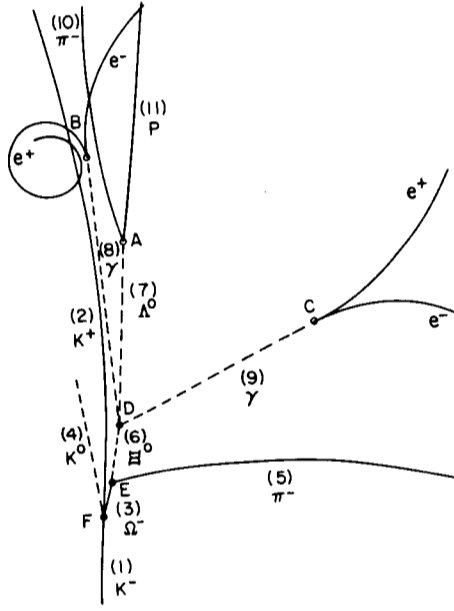
Bubble Chamber Crew



The final 80-inch chamber operating crew shown in the control room. Left to right rear: W. DeVito, N. Carlson, J. Mazzeo, N. Franklin, C. Jacobs, J. Pukit, J. Davis, D. Zantopp, N. Davids, C. Nielson, J. Sondericker, L. Toler, R. Kiely, R. Kehl, W. Wilhelm. Front, seated: W. Behie, W. Kollmer, N. Anderson.



The original Omega Minus event photograph on the left with an explanatory map on the right identifying all the particles involved. The K^- beam particle comes in at the bottom in this picture and interacts with a proton in the hydrogen at F, forming a K^0 and the Omega Minus (Ω^-) which subsequently decays at E. Only part of the Chamber is visible in this figure. The parallel lines perpendicular to the beam tracks are the edges of the old "coathanger" reflectors.



80" Chamber Closes Down After Eleven Years

Within the past few weeks, Brookhaven has reluctantly terminated the 80-inch Bubble Chamber program, despite a continuing demand for pictures. This decision was forced by the substantial reduction in real purchasing power of our FY 1975 budget.

About fifteen years ago the chamber was conceived by Ralph Shutt (now Deputy Chairman of the Physics Department) and members of his "Cloud Chamber Group," and design on it began just as their 20-inch Chamber came into operation. Construction of the chamber and its building proceeded until 1963, when in May, it was first cooled down and filled with liquid hydrogen. Expansion tests followed, and on June 2, 1963 the first bubble tracks of charged particles from the AGS were photographed in it. On December 14 of that year, the first experiment, looking at the interactions of 5 GeV K^- mesons with protons in the liquid hydrogen, was begun. It was performed by members of the Shutt group (by that time known as the "Bubble Chamber Group") led by Nicholas P. Samios (now head of "The New Group" in the Physics Department). They had taken 133,000 photographs by the end of January, 1964 and within a week or so had made a momentous discovery, formalized by publication in Physical Review Letters of February 24, 1964. This was a new particle, the Omega-minus hyperon, whose existence had been predicted by a relatively new theory by Gell-Mann and Ne'eman trying to make organizational sense out of the numerous hyperons and mesons discovered up to that time. This dramatic confirmation of Gell-Mann's theory marked the beginning of a pathway in high energy physics along which we are still moving today.

12 Million Pictures

In its working lifetime the 80-inch chamber took a total of almost 12 million pictures, of which 27% were used by BNL research groups and 73% by universities. These pictures were spread over 71 separate experiments performed by 37 United States universities and six foreign universities, in addition to Brookhaven's own research groups. The fruits of these experiments have been displayed in about 250 papers in various journals, and a similar number of talks before meetings of the American Physical Society and other Conferences, mostly international. Twenty-nine new PhD's based their doctoral theses on work done in this chamber.

The beams to the chamber have been the most complicated ever built at Brookhaven, and have supplied the chamber with K^- and K^- mesons from 4 to 15 GeV/c, π^+ and π^- mesons up to 25 GeV/c, protons up to 28 GeV/c, anti-protons from 3 to 18 GeV/c, and even deuterons from 20 to 29 GeV/c. This extensive catalog of particles and energies has made possible the wide range of experiments that have been done. Since the Omega-minus, a large part of the effort has gone into looking for other particle states predicted by the Gell-Mann theory, and several have been found in the 80-inch chamber. Of course many have also been found in other devices, and as their properties become better understood the theory is both confirmed and extended.

In September, 1965, less than a year after the beginning of physics experiments, a short circuit developed in one of the coil "pancakes" in the winding of the magnet which provides the field to curve the particle tracks in the chamber and thus makes possible momentum measurements. Repair time was estimated at one year and a great deal of manpower, so the question was asked whether that pancake could just be disconnected and the magnet run without it. Here occurred one of the few recorded violations of Murphy's Law. Not only was the reduction in field from 20,000 gauss to 17,000 gauss acceptable to all planned experiments, but elimination of this one particular pancake out of eleven in the wind-

(Continued on page 2)

Concrete Polymer Training Course

A training course in concrete-polymer materials has been in session at the Lab this week. It was attended by approximately 30 members of various Mid-Atlantic state highway departments of transportation.

For many years, the Radiation Division of the Department of Applied Science has been repairing bridges and roads in several states, using the polymer impregnation technique developed at BNL. The technique has been so successful, mainly because of its longevity and fast application,

that the Implementation Division of the Federal Highway Administration decided to sponsor a course in it.

The purpose of the course was to teach the method to representatives from various state highway departments of transportation for possible utilization in their states.

For the first three days, the attendees heard lectures on the production and application of concrete-polymer materials, as well as summaries of various research programs underway. The lectures were pre-

sented by Meyer Steinberg, Larry Kukacka, Peter Colombo, Allan Auskern, and Jack Fontana, all of the Radiation Division of DAS.

The rest of the course involved actual laboratory demonstrations in making and using concrete-polymer materials. The participants were also given a tour of the facilities where the materials are prepared.

At the end of the training course, which started October 1, the attendees were presented with certificates indicating that they were qualified to use concrete-polymer materials.



Participants in the Training Course on Introduction to Polymer Concrete Materials: Seated Front: Jack Amaro, Richard Hanlon, Raymond J. Brunner, Peter Columbo, Jack Fontana, Michael Sarno. Seated rear: Richard Howe, Merle Casdorff, Anthony Lizzio, J. Hallin, Meyer Stein-

berg, Larry Kukacka, David Brewster, Thomas Fryer, Duane Amsler, Edward Cadarette, Walter L. Mc Causland, H. Pearlman, David Nelson, Allan Auskern, Celik Ozyildirim, J.M. Gencarelli, Milton Dubinsky, James Dunne, Peter Romano.

Bubble Chamber (Continued)

ing resulted in a more uniform field, making analysis of the pictures somewhat easier. The possibility that some experiments would choose the smaller but more uniform field had been foreseen, and the field had already been fully measured, so no delay was incurred at all.

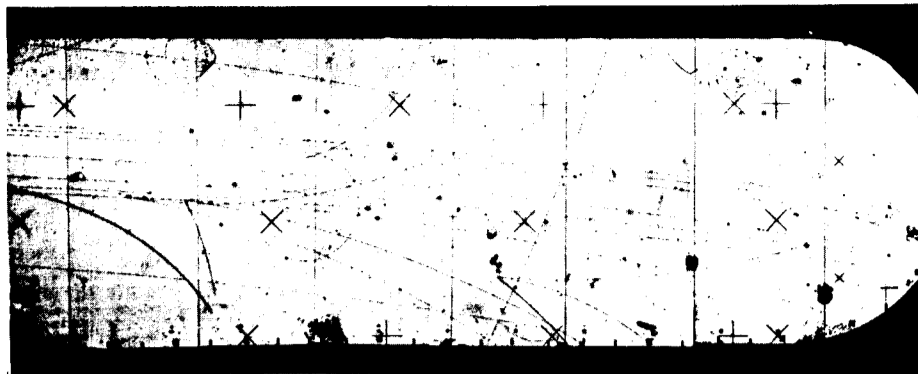
Deuterium Fill

In May, 1966 the chamber first ran filled with deuterium in place of hydrogen. Deuterium is a relatively rare isotope of hydrogen which has a nucleus composed of one proton and one neutron instead of the single proton found in hydrogen. This made it possible to study interactions of beam particles with neutrons in a fairly simple way, and in the years that followed, more than 3 million of the pictures were taken using deuterium. The value of the deuterium used to fill the chamber and auxiliary systems was about \$80,000 which is a lot of fluid assets. A massive effort had to be mounted to find and fix leaks so tiny that they had posed no safety problem, but which now presented a financial problem!

Another exotic filling was used for the first time in March, 1967 when a mixture of neon and hydrogen was condensed into the chamber for an experiment to look at the interactions of K mesons with heavy nuclei. The fact that neon should have the correct properties to make it usable in a hydrogen bubble chamber was first proposed at BNL and tested in the 20-inch chamber. Its use in the 80-inch chamber provided proof that it was practical for extended runs in large chambers. It was eventually used for about one third of a million pictures in the 80-inch, and has since become a common filling for chambers elsewhere.

Double Pulsing

A new, hydraulically-driven expansion system (for suddenly lowering the chamber pressure to make bubbles grow on particle tracks, thus making them photographable) replaced the old gas expansion system at the end of 1968. It greatly decreased the complexity of the system which had to be filled with deuterium, and thus decreased the loss rate when it was used as a chamber filling. The new system was also designed to make double pulsing (making two expansions and taking two separate pictures on each pulse of the AGS) practical and to provide other technical advantages. Unfortunately it also required solving a large



A picture of the whole Chamber showing typical tracks in the new "bright field" optical system, with the back of the Chamber wallpapered with Scotchlite.

number of technical problems, mostly connected with rapid valving of high speed, high pressure oil flows. These took time away from the physics program for several months and although they were finally conquered, it was an expensive victory. During this period many of the technicians who worked on the chamber discovered the delights of bathing in hydraulic oil, though none complained when it was over. Many lessons learned there were applied also to the installation of a similar system on the 7-foot chamber (Brookhaven's newest and only remaining operating bubble chamber), and it operates very smoothly.

At the end of 1969, the optical system was changed from "dark-field" in which the tracks appear bright against a dark background to "bright-field" which is the reverse. This was done by replacing the complicated "coathanger" reflectors in the back of the chamber with special Scotchlite glued directly to the back wall, and the light source located centrally between cameras by separate circular flash tubes around each camera lens. This gave much cleaner pictures, and combined with new lenses and very high resolution film, made it possible to use smaller images on film, cutting film costs by almost a factor of four. At the same time, the film transports were redesigned to advance the film and flatten it for the next exposure in about 1/10 of a second, necessary for double pulsing. Finally, in January, 1971 the first of several experiments to be run in double pulse mode was done.

Winding Down

In the last few years the 80-inch chamber has been scheduled to run a smaller fraction of the time, and the crew members have made a strong contribution to finishing the AGS conversion jobs, getting the 7-

foot chamber and neutrino beam ready to run, and installing the Multiparticle Spectrometer. During this period a small effort has been maintained on building a "track-sensitive target," which is a sort of bubble chamber inside a bubble chamber, for the 80-inch. This would permit running the chamber with hydrogen or deuterium for a target, surrounded by heavy liquid (neon) for high gamma ray conversion efficiency to enable complete analysis of events in which neutral particles (leaving no visible track) were found. This was nearly operational when the decision to shut down the chamber had to be made. However, the experience gained here, and perhaps some of the hardware will be applied directly to a similar program for the 7-foot chamber. Also since the only other experience with building such devices is at CERN in Switzerland, the BNL expertise will be of some benefit to FNAL in their 15-foot chamber program.

Since a bubble chamber comprises such a wide variety of systems, the crew members have a unique breadth of experience in cryogenics, vacuum, hydraulics, optics, etc. They have all been reassigned to other areas in the Accelerator Department, and it is expected that they will be of particular value in several projects in superconductivity which will be coming up in the near future.

—Robert Louttit

Arrivals & Departures

Arrivals

- James A. Bell.....Applied Science
- Joseph M. Carraba.....Central Shops
- John A. Fillo.....Mech. Engrg.
- Theodore Ginsberg.....Applied Science
- Thomas P. Henry.....Applied Science
- James S. Munson.....Applied Science
- Mato Orhanovic.....Chemistry
- Daniel J. Pisano Jr.....Physics
- Benny H. Rose.....Physics
- Anne-Marie Schuchman.....Medical
- Fred F. Stahman.....Plant Engrg.
- Audrey Z. Vary.....Medical
- Otto White, Jr.....Hlth. Phys. & Safety

Departures

- Edward Dolan, Jr.....Biology
- Fred H. Geisler.....Physics
- George D. Harp.....Chemistry
- Anthony P. Torre.....Instrumentation

Cafeteria Menu

Week Ending October 11, 1974

- Monday, October 7**
- Corn Chowder
- Beef Liver & 1 Veg. 1.05
- Scrambled Eggs, Sausage, French Fries .95
- Tuesday, October 8**
- Beef Noodle Soup
- Salisbury Steak & 1 Veg. 1.00
- Sauerbraten, Potato Pancake 1.20
- Wednesday, October 9**
- Cream of Potato Soup
- Beef Chop Suey on Rice 1.00
- Broiled Filet of Cod & 1 Veg. 1.05
- Thursday, October 10**
- Chicken Vegetable Soup
- Lamb Stew on Rice 1.20
- Roast Turkey w/stuffing & 1 Veg. 1.20
- Friday, October 11**
- Clam & Celery Soup
- Spaghetti w/Clam Sauce 1.00
- London Broil & 1 Veg. 1.20

Letters To The Editor

Dear Sir:

The members of the scanning transmission microscope group and the Biology Department as a whole would like to express their deepest sympathy to the family of designer Larry Barattelli who died Sept. 1 following surgery. His personal warmth and enthusiasm for the project will be greatly missed.

J.S. Wall and J.W. Bittner

Revolt At Bald Hill This Saturday, Sunday

The crash of flintlock muskets – the swirling clouds of powder smoke – the roar of cannon – and the sound of fife and drums will come to Brookhaven as the **Brigade of the American Revolution** makes a week-end appearance at The Bald Hill Ski Bowl in Farmingville.

Members of the nationally famous Brigade, dressed in authentic uniforms and armed with weapons and equipment identical to that used 200 years ago, will come from as far as Northern New England, the Mid-West and the Deep South, to present drills, tactical battlefield demonstrations, musical reviews and exhibitions of the crafts and skills of the 18th century.

The Brigade will establish a complete 18th century military camp and bring to life the soldiers who fought in the War for Independence: the hardened American Continentals – the Redcoats of King George – the frontier riflemen – the greencoated Torys – the citizen soldiers of the Militia – the pigtailed Hessian mercenaries – the Scot's Highlanders.

The craftsmen of the Quartermaster's department; the leatherworkers – blacksmiths – carpenters – etc., will set to work creating the army's necessities as they describe to the visitor their crafts and tools.

The soldier's wives, who did much of the every-day crafts 200 years ago, will be spinning and weaving cloth, dyeing wool or making soap and candles. A lucky visitor might stop by a smoky camp fire and sample some 18th century cookery.

Several times daily the fifes and drums will call the soldiers into the ranks to drill and review according to the authentic manuals of the period, and, of course, the highlight of the day is when Washington's army collides with the King's forces in a tactical battlefield demonstration.

"We are trying to recreate the life of the common soldier who fought on both sides of the American Revolution," said George Woodbridge, Brigade Commander and noted historical artist. "The Brigade is a national historical society, made up of professional and amateur historians, dedicated to capturing the spirit of those times and creating a living history for today's Americans so that they might better understand their heritage."

The Brigade will appear at The Ski Bowl on Saturday Oct. 5 at 1:30 and 3:00 p.m. and on Sunday at 1:30 and 3:00. The encampment is sponsored by the Township of Brookhaven.

Heart Association Cyclethon Coming

The largest Cyclethon ever to take place in the nation and in Suffolk County coming up Sunday, October 13, for the Suffolk Heart Association, announces a grand prize of two 10-speed Iverson Bikes and second prizes of one 10-speed Iverson bike in each of three categories: –for cyclists up to 14 years of age; –between 14 and 18; –over 18.

Also many other prizes. Call Suffolk Heart at 363-6200 for more information and registration forms. Prizes go to those collecting the most money from sponsors at 25 cents or more for each mile they complete.

Route One – Broadway and 25A, down William Floyd Parkway to Smith's Point Bridge, or, to traffic light at Brookhaven National Lab entrance for circle route. (17 miles straight or 16 miles circle.)

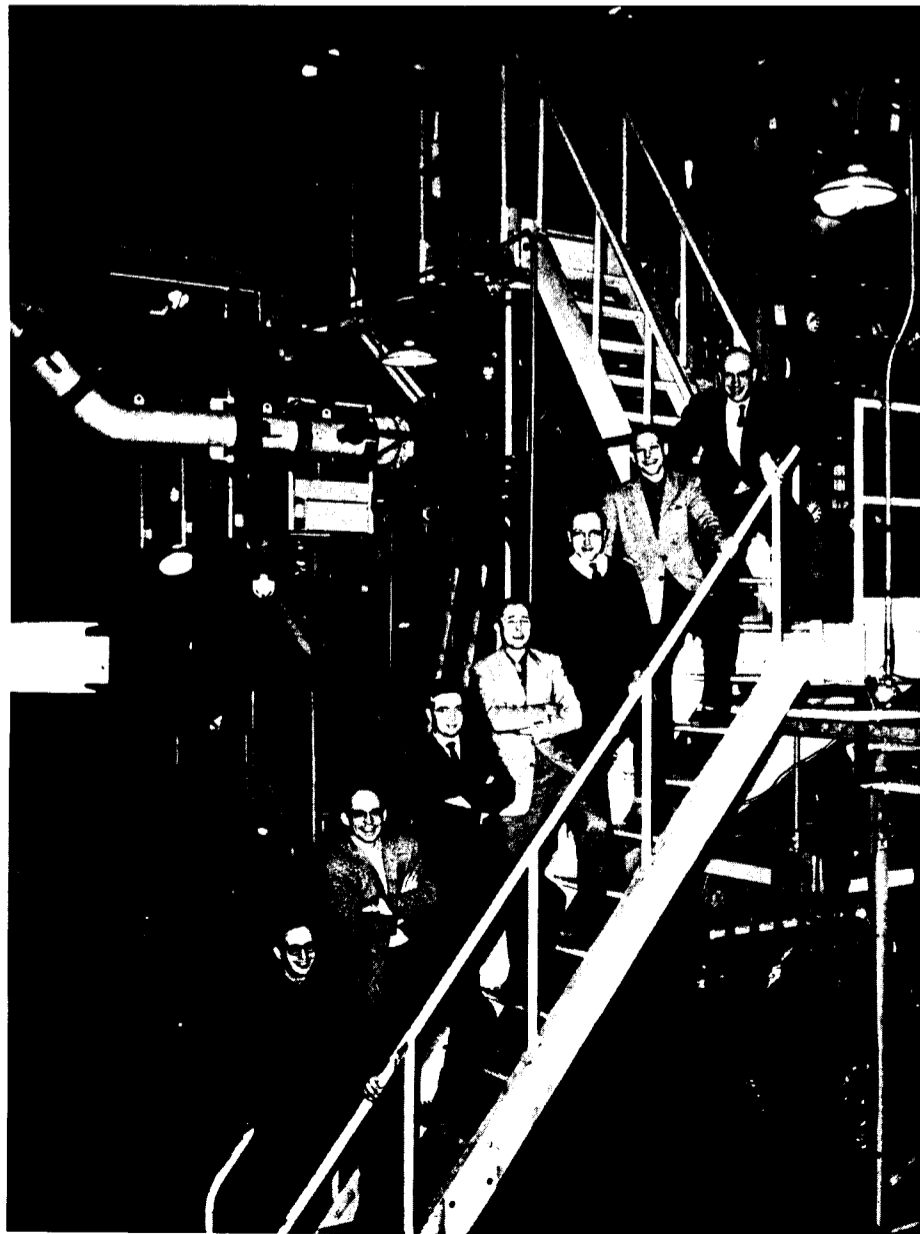
Everyone is invited to join in the fun for the Heart Fund! Bruce Blower, chairman of the Cyclethon '74 Committee said, "It's not a race and if you haven't been on a bike for a long time, now is the time to get it out and re-cycle! This is open to all, young and old! Cycling is one of the best exercises there is for your heart!"



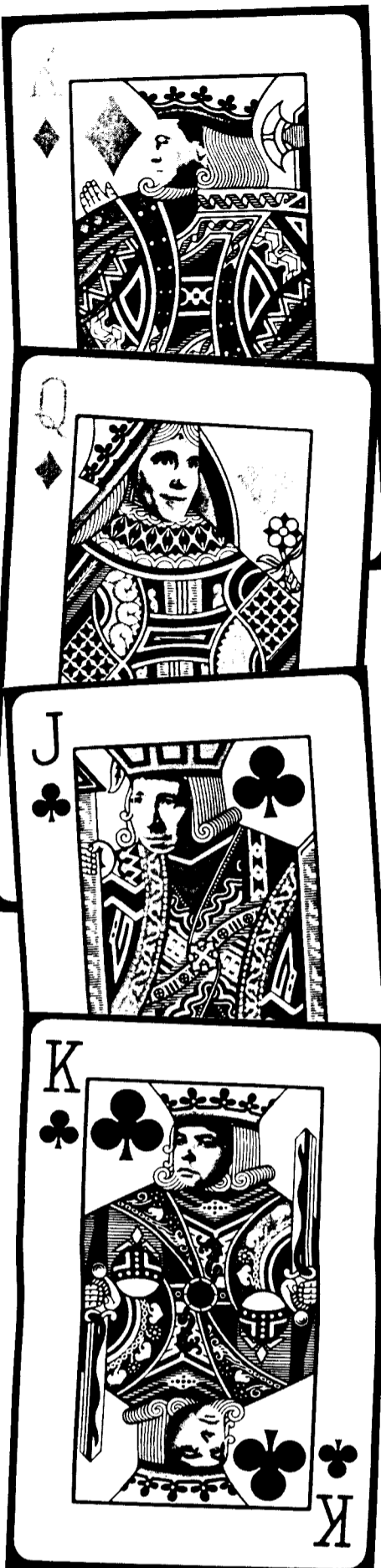
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Part of the group of people involved in the Omega Minus experiment shown on the side of the 80-inch Chamber in February 1964. They are (top to bottom): R.P. Shutt, J.E. Jensen, M.S. Webster (now at Vanderbilt University), W.A. Tuttle, W.B. Fowler (now at NAL), D.P. Brown and N.P. Samios.



The Real Inspector Hound

Here's a hand that will take a trick in any game. The Queen of Diamonds, scintillating Cynthia, Moon, a lesser light in the critic's circle, the mysterious Simon Gascoyne, and the swamp booted Inspector Hound - the doers and the done to in the whodunit, *The Real Inspector Hound*.

Tom Stoppard has written a play to confound mystery story addicts by providing a combination of whole humor and half horror. As the audience chuckles, it slowly becomes aware of the grim battle of wits developing between Birdboot, Moon and their adversary.

Last week the story line told how Birdboot answers a telephone only to find himself trapped by his own vanity. A grim episode thrusts Moon into the action. Bewildered but determined, he doggedly plays another part until the real Inspector Hound is revealed.

Lady Cynthia and Felicity, our two beauties, go at each other with lady-like refinement culminating in a delightful double meaning sequence during the card game. Mrs. Drudge, given droll dialogs, is a part of far more substance than that of the usual maid servant.

Tickets are now being sold at BERA Sales & Services Office in the cafeteria - call 345-3347 and by Pat Towey, 345-3727.

Seating is limited and with BERA productions averaging a total of 600-1000 attendees, it is expected that all performances will be sold out.

Play dates are Oct. 18-19 and 25 at 8:30 p.m. Two performances will be held on Oct. 26 at 7:30 p.m. and 10:00 p.m.

Cooking Exchange

Jane Love

Take a handful of Herbs and in no time at all you have some good things to eat - drink, smell. Come to the Cooking Exchange, Recreation Building, October 9 at 12:30 and join in when we learn some new things to do with some old friends. The cost is 75¢, 25¢ per child for the sitter, and you are so welcome. If you aren't with us - we will miss you!

- The Schedule for the year:
- Oct. 23 - My Old Kentucky Home
 - Nov. 6 - Favorite Things
 - Nov. 20 - Cape Cod
 - Dec. - Christmas Party - date to be announced
 - Jan. 8 - Leftovers, make do and stretch out
 - Jan. 22 - Chinatown, My Chinatown
 - Feb. 5 - Chicago, Chicago
 - Feb. 19 - So maybe we better take a quick look at Weight Watchers
 - Mar. 5 - The Great Chili, Taco, Beans and tamale territory
 - March 19 - So you Can't bake a Cherry Pie - Why?
 - April 2 - Pennsylvania Dutch
 - April 16 - Bisque, Chowder and Consomme
 - April 30 - New Orleans
 - May 14 - Lazy, Lazy cooks
 - May 28 - Men-Men-Men!
 - June 11 - International Dinner.

- Committee
- Lee Schwender - 744-5422
 - Ruth Dimmler - 751-6342
 - Lela Radeka - AT6-0854
 - Rosemary Jewett - 345-3089
 - Jane Love, Chairman - 286-1136

BERA Ticket Sales

O come, all ye sports fans. Now is the time for all good fans to come to the aid of their favorite New York teams.

Are you a Jets fan? Well, the following tickets are still available:

- October 13 - New England Patriots - 6 tickets
- October 20 - Baltimore Colts - 2 "
- November 3 - Houston Oilers - 16 "
- December 1 - San Diego Chargers - 14 "

Perhaps you would rather sit in the comfort of a heated indoor arena and enjoy the action of a hockey game. Well, the following New York Islander Hockey tickets are available for the month of October:

- October 12 - Kansas City - 4 tickets
- October 15 - Montreal - 2 "
- October 22 - Atlanta - 4 "
- October 26 - Minnesota - 4 "
- October 29 - California - 4 "

Your support of these two teams is the only means BERA has for determining whether or not we will purchase season tickets for the coming year.

Metropolitan Opera Tickets

The BERA Sales & Services Office has the following Metropolitan Opera tickets still available for the months of October and November:

- October 10 - L'Italiana in Algeri - 2 tickets
- October 16 - L'Italiana in Algeri - 2 "
- October 22 - Romeo and Juliette - 4 "
- November 4 - I Vespri Siciliani - 4 "
- November 11 - Cavalleria/Pagliacci - 2 "
- November 12 - Tosca - 2 "
- November 25 - Death in Venice - 2 "
- November 27 - Cavalleria/Pagliacci - 4 "

Mountain Club

Twelve members of the BNL Mountain Club were present for the 26th of September meeting to plan some activities for early Fall. A backpack trip to the Catskills is scheduled for the October 12th weekend with the expectation of enjoying the Fall color. Interested hikers can contact Tom Clifford (ext. 4102).

On Saturday, October 26, there is a clean-up of the Peconic River. The BNL Mountain Club will take part in this effort with Bob Mack (ext. 3653) serving as our contact man. If you want to contribute to this effort call Bob.

The next Mountain Club meeting is Tuesday, November 6th at 8:00 p.m. Plans will be made for winter hiking, camping and cross-country skiing.

Rifle and Pistol Club News

Our September 25th reactivation meeting was attended by 25 members and several guests. Two new members were added. A lively discussion developed on our new constitution, and one rules change resulted.

Don't forget to attend practices at the Barton Avenue armory on Tuesday nights, and do attend our regular business meeting on October 19th - usual time and place.

-Don Huszach, Sec.

BERA Concert Series

The 1974-75 concert season promises to be an exceptionally fine and varied one. The season will begin with a recital by the widely acclaimed Spanish harpist Nicanor Zabaleta on Tuesday, October 22.

The remainder of the season will feature the following performers:

- November 12 - London Virtuosi
- January 14 - Michel Debost, flutist, and Christian Ivaldi, pianist.
- February 19 - Valentin Gheorghiu, pianist.
- March 19 - Quartetto Caecilia di Roma, string quartet.

All concerts will be presented at 8:30 p.m. in Berkner Hall. Tickets for individual concerts will be on sale soon in many BNL buildings and can also be purchased at the door the night of each concert. Admission will be \$3.50 for adults, \$1.75 for those over 65 and for students with valid I.D.'s and \$1.00 for those under the age of 18. Season tickets (block of five) may be purchased before the first concert at a price of \$2.50 each.

Watch the *Bulletin* for more information on individual concerts.

Volleyball Season

Volleyball is about to begin another season. Teams are now being formed. The Men's league will probably be scheduled for Wednesday evenings and the Mixed league will probably be scheduled for Monday evenings, starting at 5:30 p.m. The rules have been revised to insure the ladies an opportunity to compete and participate equally with their male opponents and team mates.

Any employee and/or spouse may play in the Mixed league. Employees only may play in the Men's league. BERA supplies all the playing equipment necessary. You will only need sneakers and a comfortable outfit.

What do you have to do to join? Call Pat Oster on extension 4763 to get a team application or have your name put in the player's pool. A minimum of eight players are required to enter a team. All captains must be employees. The team entry fee will be determined by the officers and captains at their first meeting.

Bowling News

Grace Fales

And Here's the Red League! 9/10 - Season off to a good start with G. Follenius receiving the League's first Club Award - 678 gross series. Congratulations! Other highs were J. Carroll 200, R. Wilson 212, R. Nelson 210, J. Roesler 218, R. Adams 213, E. Fales 209, J. Petro 206, J. Scesny 213.

9/17 - High scores for this week were: R. Adams 203, E. Fales 202, K. Asselta 206, B. Buzzeo 216, and J. Lee 213. As for 9/24, N. Carter won his Club Award with a 684 gross series. Other highs were R. Larsen 209/204, J. Petro 224, L. Jee 202, C. Gardner 208, R. Nelson 210/202, E. Fales 206, T. Jejaitis 201, and F. Hohmann 213.

Green League

Congratulations to C. Bohnenblusch for his 233 gross game, winning the Cold Duck Shoot, and to A. Pinelli for his 701 gross series, earning his Club Award. 200's for the night were rolled by A. Pinelli 205, S. Kiss 233, and W. Kollmer 235.

Black and Blue League

Highlights for 9/18: Congratulations to Don Schag, 711 gross series, and Fred Van Dervoort 681, winning their Club Awards. High games were: Don Schag 212/203, Dick Murgatroyd 201, Rosalie Piccione 190, Ellie Murgatroyd 180, Audrey Bangel 176, and Nancy Mayeski 171. High games for 9/25: Ralph Taylor 200, Grace Fales 188, Renee Flack 168, Kit D'Ambrosio 166, Mary Austin 164, and Betty Jellett 161. There are still openings for substitute bowlers in this league. If interested, call Lew Jacobson, Ext. 2462.

Pink League

The Medi-tarsals are very proud of their star Bowler, F. Green, whose high gross game of 260 won her the Cold Duck Shoot. Congratulations to H. Caisey who rolled a high gross series of 667. R. Piccione's high game of 209 helped pull the Pinsplitters out of last place. C. Schuette's high game of 221 should be an inspiration for all of us. Nice going girls!

On Site - -



Meet Betsy Schumejda, a current reminder that "thinking metric" will be second nature in the U.S. one of these days. In the metric mode Betsy is statistically 162.56 cm. high, 41.25 kilograms in mass and 86.36 cm., 58.42 cm., 88.90 cm. in other vital measurements.

She's been on site for five years and works in the Nuclear Materials Division with Willie Hig-inbotham and Bill Marcuse (who thinks the metric system is "long overdue" in America). Betsy ("my family all call me Mary"), likes volleyball, Italian food, gardening, and the color blue. She hates spiders, is crazy about the beach, but admits to liking snowy weather best of all. She's been married to Bernie Schumejda for three years.

Her feelings about the metric system? "You mean centimeters and things? Well, I use a metric ruler for drawings occasionally, but other than that I really haven't thought too much about it."

Presently, in a world where ninety percent of the population live in countries that are metric, the U.S. stands alone as the only industrialized nation not committed to the metric system as its basic language of measurement.

Things are changing though. The scientific community uses the system extensively; legislation, though slow, is on the move; and almost twenty percent of American industry is using metric measurement in some way in their operations.

-Humphrey

Pistol Vs. Bow

A friendly encounter between archers Joe Bauernfield and Bob Lundgren vs. a non-Lab shooter, Jim Gregory, revealed that what at first seems an unfair match is in fact a well-balanced match. The distance is 50 yds. and the target is the 50 yd. slow fire pistol target. On a beautifully clear though windy day, after the arrows stopped flying and the noise subsided, the following scores were made out of a possible 300 points.

- Bauernfield scored 252 points
- Lundgren scored 235 points
- Gregory scored 248 points

Noises were made regarding a rematch in the spring time. Congratulations Joe; however, let's not make it quite this close next time.

-Carl Cantera

