Vol. 5 No. 26

July 12, 1973

PROGRESS CONTINUES IN NAL MESON AREA



...An aerial view of the Detector Building and some of the experimental lines of the NAL Meson Area. Since the photo was taken in April, 1973, enclosures, the same as over the M6 Line, have been completed over the M1 Line and the M2 Line (the two lower rectangles extending from the building). Main accelerator is to the left (southwest) of the building...

The Meson Area recently finished "hosting" the Brookhaven-Yale quark search at NAL, one of the first searches for particles which have been predicted by theories for some years but which require the high energies of the NAL accelerator for experimental verification. The quark, for instance, was proposed in a conjecture by Murray Gell-Mann (who is also a member of the NAL Program Advisory Committee) and Yuval Ne'emen in 1961. According to their ideas, a particle with a fractional electrical charge, named the "quark" by Gell-Mann, could be used to understand the known sub-atomic particles such as mesons and protons, by considering these particles to be built up from quarks.

The experimental plans for Experiment #72 matched the plans to activate the M-4 Line of the Meson Section. Experimenters from the Brookhaven-Yale University collaboration installed their equipment on the M-4 Line and ran for 500 hours until completion on June 11. No quark was found in this first a

...Tom Golaszewski and Bud Koecher installing target load on the Meson target

train...

until completion on June 11. No quark was found in this first run, but a modest effort by the group will continue. "They demonstrated again what has been found before -- a measure of the rareness of quarks," according to <u>Richard Lundy</u>, head of the NAL Meson Section.

Experiment 75, another quark search, is underway in the Meson Area. <u>Taiji Yamanouchi</u>, of NAL's Neutrino Section, is spokesman for the group, in collaboration with <u>Tom Nash</u> of NAL's Proton Section; <u>David Nease</u>, Cornell graduate student, and <u>John Sculli</u> of <u>New York University</u>. This group has taken data since May in the first phase of their plan; the second phase will be completed in August.



... Equipment and enclosure of the Single Arm Spectrometer in the M6 Line...



...R. Gustafson (Experiment 4A) at liquid hydrogen target in the M3 Line...

The Meson Area provides locations for six relatively fixed beam lines, using beams of secondary particles, particles that are produced following the collision of the proton beam from the Main Accelerator with a metal target on the Meson Target train. These particles are typically mesons (medium-mass particles), although one of the six lines is a neutron particle beam and another a diffracted proton beam. Beam coming from the accelerator enters an 80 ft. Meson Target Box containing the tungsten target mounted in the array of equipment located on a 3-car target train. The six lines begin at the target box and transport beams some 1400 ft. farther down the line to the Detector Building, each beam with certain characteristics. The six lines and their status at the present time are:

- M1: A charged particle beam line stressing high intensity, with a 220 BeV energy limit at present, and provision for Cerenkov counters which tag the particles. Five experiments have been approved for this line, plus one test.
- M2: A charged particle beam of diffracted protons swept from the M3 neutral beam line and recombined to yield high momentum. Seven experiments have been approved for this line including the NAL quark search.
- M3: This line is a neutral beam from which all charged particles have been removed. The neutron particles here will be used by four experiments already approved.
- M4: Also a neutral beam line, extending at an angle downward from the horizontal position of the other Meson Lines. M4 passes under the detector building into a tunnel on the north side of the building where experiments are installed. The large initial angle results in higher relative production of neutral kaon and neutron particles. Two experiments have been scheduled here.
- M5: A test line for the present.
- M6: Divided into two branches east and west. One utilizes a single spectrometer, the other scattering equipment, both studying the effects of the secondary particles' striking targets in the Meson Detector Building. The Single Arm Spectrometer is housed in a metal enclosure extending 600 feet from the north end of the Detector Building. Three experiments have been approved for the M6 Line.

Headquarters for the Meson Area, located 1400 feet from the target, is the Detector Building. The arched roof of the 250' X 160' building is formed by C-shaped corrugated steel elements placed on one side and assembled in rows to form a striking scalloped effect on the exterior. The Detector Building houses controls for the main components of the Meson Lines as well as administrative offices, a 20-ton crane spanning the entire length of the building, and a vast array of experimental set-ups.

Administration of the Meson Section is headed by Dick Lundy, with assistance in liaison from Frank Ascolese, and Joyce Arado as secretary. Liaison physicists in the section are S. Ecklund, H. Haggarty, P. Koehler, E. Malamud, and A. Wehmann. The operations group is headed by R. Trendler. Engineering work is handled by R. Niemann, with Marie Nelson as secretary. The installation group is led by R. Kolar. Components for the Meson Lines are built by a group headed by J. Michelassi as supervisor. Beam line and experimental design is the work of T. Glowacki, U. Patel, and J. Satti.

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NEW FIRST AID COURSE COMING HERE

Olive E. Thompson, one of NAL's two First Aid RN's, will teach a new type of beginner's first aid course to people at NAL starting July 24. Called a "multi-media" course, it is a plan that uses films and texts in a new combination to make learning easier and quicker.

Olive recently received her training certificate from the American Red Cross after she completed an intensive training session at the ARC headquarters in Chicago. A graduate of St. Luke's Hospital, St. Louis, she came to NAL in December, 1972 from the DuPage County Health Department where she had done community nursing for seven years. The mother of two sons, Olive and her husband live in West Chicago. She has her office at NAL in the First Air trailer adjacent to the Transfer Hall from which she serves all people in the Central Laboratory area.

The first class to study first aid under the multi-media method will be staff of the Advance Security at NAL. Classes are limited to eight persons at a time, each class meeting for

...Olive Thompson...

 $7\frac{1}{2}$ hours. The classes for the security personnel will be held at the Safety Office on Old Batavia Road.

NAL personnel and other people on site will be able to take the multi-media instruction later on. According to Mrs. Thompson, the course gives basic instruction on what to do in case of an emergency where first aid is needed.

HAVE YOU SIGNED UP YET?

Only two weeks away...dates for NAL blood donations, Wednesday and Thursday, August 1 and 2. Don't let vacation plans or other summer distractions get in the way. Call Ext. 3232 NOW and make your appointment.

At least 200 donors are needed to continue full coverage for NAL employees. Visiting experimenters may also donate; their donation will not be credited to the NAL account, but will give the experimenter and his family coverage for the following year.

A report in the Chicago Tribune on Monday, July 9, points out that blood supplies in the Chicago area have been sharply curtailed recently because many organizations suspend blood collecting activities during summer months. One hospital's donations were off at least 30-40%. Hospitals and blood banks in the Chicago area have issued a special plea for donors.

For further information and to make your appointment, call Dorothy Poll, Ext. 3232.

INDUSTRIAL PHOTOGRAPHERS VISIT NAL



Tony Frelo, NAL; Rudy Barcena, University of Illinois; Bob Carlson, Sundstrand Corp., Rockford; and Clarence Lynest, Kraft Foods, Chicago...

Over 80 members of the Mid-States Industrial Photographers and their families held a meeting at the National Accelerator Laboratory recently. Tony Frelo, NAL photographer, hosted their visit at NAL. Frank Nezrick, Neutrino Section, spoke to the group and a tour of the main facilities of the Laboratory rounded out the evening's program.

JULY FILM - Friday, July 13 - 8 p.m. - Village Barn. LA TERRA TREMA, award winner at the Venice Film Society, is the July offering of the NAL International Film Society. The film features non-professional actors in a Sicilian village setting and is considered a triumphant combination of neo-realism and romantic lyricism. Luchino Visconti directed the film. Punch and cookies will be served at the social hour following the film. Visiting experimenters are welcome. Tickets are \$1.00 for adults.

MOONLIGHT POOL PARTY - Saturday, July 14 - 7 p.m. Summer employees and teenchildren of NAL pool pass holders, and their dates are invited to the pool party planned by NALREC for Saturday night, July 14 from 7-11 p.m. A 4-piece band will play for dancing on the tennis courts beginning at 7 p.m. Swimming will be free between 9 and 11 p.m. Refreshments will be served. You MUST make reservations to attend. Call Jo Baaske, Ext. 3242 or Eric Jarzab, Ext. 3396.

GO GROUP LOOKING FOR MEMBERS



A group of "Go" players at NAL is looking for some more players interested in starting a Go-Group at NAL. If you are interested in joining or in observing, call Kyu Lee, Ext. 3205, shown at left in photo, Wendell Chen at right.

Chen, Michigan State experimenter at NAL and one of a dozen or so top Go players in the U.S., advises that there are 100 Go clubs in the States, mostly at universities and research centers. Using a square board with "stones," Go, a Chinese game played as early as 2,000 years ago, seems to attract mathematicians, programmers, and physicists, many of whom are ex-chess players. A system of ranking to accommodate the strengths of different levels of players allows a wide range of participation. Chen also advises that final game of the national Go tournament between an Eastern US champ and a Western US champ is played by telephone.

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TOLL FREE PHONE SERVICE NOW AVAILABLE IN NEARBY NAL AREA

A telephone line giving toll-free calls into NAL from communities within an approximate 12-mile radius of the Laboratory went into operation on Thursday morning, July 12. The new number for this service is 231-6040. Calls to this number will come into the NAL switchboard rather than to the centrex arrangement. If calls to the Laboratory's 840 exchange from your home have been toll charges for you, using this new number to call into NAL may eliminate those charges. Check your directory for information on toll-free calling from your residential area, or call Carolyn Hines, Ext. 3788, for further information.

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CLASSIFIED ADS

FOR SALE - 1 Air Conditioner, 220-V, 10,000 BTU, \$50; TV Tower with mast, 4 sections-45', \$60. Call Eleanor Ewish, Ext. 3349 or 896-4121.

FOR SALE - B.B.Q. Rotater Grill, \$5; Large canvas, \$25; Desk, \$15; Double bed, \$15; Dresser, \$25; Hans Eclipse Tractor Mower, \$195. Call M. Kampikas, Ext. 3377 or 879-1712.

FOR SALE - Courier 23 CB radio, base or mobile with D-104 mike and astroplane antenna; Contex 150 Linear Amplifier, best offer. Call Bill Beckley, Ext. 3428 or 892-6326.

 $\frac{\text{WANTED}}{(35 + 120 \text{ film})}$ and grain focuser. Call Victor Ashford, Ext. 3236 or 896-6162.

WANTED - To rent or borrow, a small two wheel trailer for last two weeks in July to haul luggage and tent equipment. Call Charles Crose, Ext. 3728.

FOR RENT - 1973 Motor Home, a/c, self contained, sleeps 8. Weekends, \$70 + 12¢ mi; by the Week, \$150 + 10¢ mi., and deposit. Call J. Ticku, Ext. 3729 or 897-7519.