

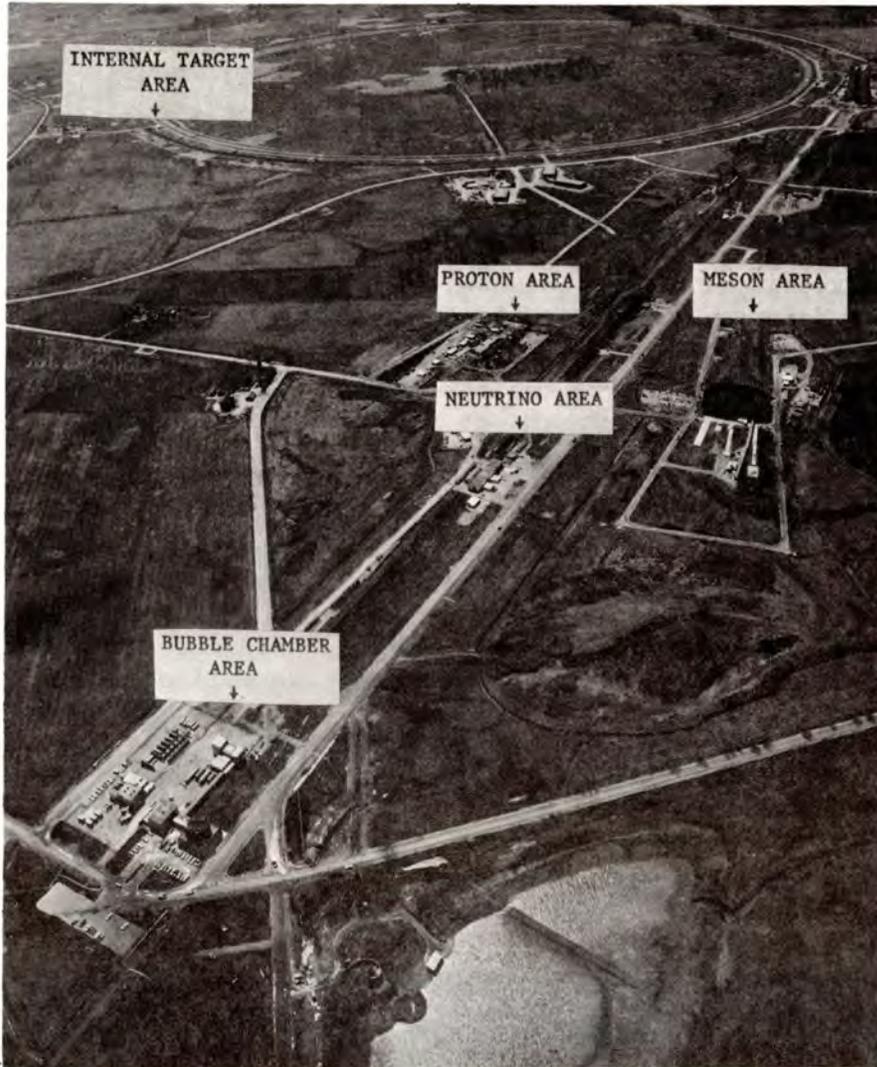
The Village Courier

 national accelerator laboratory

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...A recent aerial photo by Tony Frelø of the Accelerator system and the experimental lines of the National Accelerator Laboratory...

at high energies than at low and intermediate energies. There is great interest in what the still higher energies and the capabilities of the NAL machine will contribute to this observation.

This situation has quickened the pace of study noticeably in recent weeks. Does the proton grow, or actually become larger at higher energies? Or is this phenomenon due to break-up of individual parts within the proton? If so, what are the newly created pieces which come from the break-up?

Several NAL staff members have been involved in experiments now reporting data which help to throw light on this new effect. Following up reports made at the XVI Conference on High

NAL EXPERIMENTAL AREAS READYING FOR ACTION

The NAL accelerator has been compared to a high-powered microscope because it will enable physicists to peer farther into the depths of sub-nuclear structures than has ever been possible. In the past few months, as the first results of experiments underway at NAL have been published, an air of excitement can be detected in the discussions of what may be found in the first glimpses into the unknown regions.

Much of the progress in understanding the internal structure of the proton is made by "scattering," or deflecting, a beam of protons by creating collisions of the beam protons with other protons. Various characteristics of the collisions indicate many things to high energy physicists. An experimental set-up to measure these characteristics is referred to as a "proton proton scattering" experiment. Progress in these areas requires beams of higher and higher energies and this is the reason for increasing the energy of the accelerators used. It is like raising the power of a microscope to bring smaller and smaller objects into focus.

The excitement now in the air at NAL comes from the fact that there is evidence that "something new" happens to the proton as the new highs in energy are used. The proton seems to be larger

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NAL EXPERIMENTAL AREAS (Continued)

Energy Physics in September, 1972, staff members attending the meeting of the American Physical Society in Los Angeles in December and in New York in January reported, among other things, on the increase in the size of the proton as the energy is changed. Extensive reports were made at a conference at Vanderbilt University in March: Bubble Chamber experimenters reported again; J. Whitmore and L. Voyvodic reported on the proton proton interactions in the 30" Chamber at 200 BeV; FuTak Dao, on 300 BeV proton interactions. R. Huson reviewed the first experiment with high energy mesons, 200 BeV negative pions, completed on March 10, 1973. D. Ritchie reported results on the production of photons at large momentum transfer, another experiment done at NAL at the Internal Target Section. J.D. Jackson presented a theoretical overview at the conclusion of the meeting. Experimental teams from many universities reported on the work they had carried on at NAL, including preliminary results from Neutrino Area experiments.

James K. Walker and R. Carrigan were invited to attend a conference at Meribel-les-Allues, France, recently where twenty theorists and twenty experimentalists from many countries met to discuss current experimental data. Walker and Carrigan presented the latest data from NAL. Dr. Walker reports of this conference, "There was great excitement and many speculations on the cause of the rapidly increasing cross sections at high energy."

Dr. Walker is a member of the photon experiment at the Internal Target Section. A news story in the April 14 issue of the magazine Science News cites his theoretical and experimental work. "Physicists now have the scent of a very important clue to the internal structure of the proton," Dr. Walker observes.

All of the experimenters are cautious in speaking of the emerging information. "It's too early to say anything with certainty," they feel. But they agree that in less than a year, the new high energy tools at NAL have begun to do the job they were built to do and "who knows what might happen?"

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PLEASE TAKE CARE...Many defenseless little creatures of nature roam with confidence across the roads on the NAL site. Pheasants, muskrats, the clumsy lovable coots near the Village, deer, and many others are not aware of the human life on their home territory. Drivers on NAL roads are asked to be alert for these animals and birds. Slow down and give them a chance to get wherever they're going, asks Nevin Govan of Technical Services. "They think the Lab site belongs to them," Nevin says.

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...This little fellow was photographed by NAL's Tim Fielding, under a tree outside the Photo Unit. The VILLAGE CRIER is interested in seeing all photographs of interesting specimens of nature photographed on site. If you have one, why not share it with the rest of us?..

PAUL J. REARDON HEADS ACCELERATOR DIVISION

Paul J. Reardon has been appointed Associate Director of the National Accelerator Laboratory and head of the Accelerator Division. Prior to this appointment, Robert R. Wilson, NAL Director, had been acting as head of the Accelerator Section. James A. Campbell replaces Reardon as Director of Business Administration.

Reardon had served as head of the NAL Business Office since January, 1970, having come to NAL as head of the Booster Section in October, 1968. The many hats he has worn at NAL include, in addition to his Business Office duties, appointments as chairman of the Safety Committee in 1970; as head of the Energy Doubler group in 1972, and head of the Accelerator Research group last January. The latter two functions are part of the Accelerator Division.



...Paul J. Reardon...

(Photo by Tim Fielding, NAL)

A native of Massachusetts, Reardon received degrees from Boston College (A.B.) and Rutgers University (M.S.). In addition to service as an officer in the U.S. Army in the Korean War, Reardon worked as a physicist for the Johns Manville Research Center, Manville, New Jersey, and as head of the Operating Division for the Princeton-Penn Accelerator at Princeton University where he was employed for eight years. From 1964-1966 he served as Accelerator Physicist at the High Energy Physics Section of the AEC's Division of Research in Washington, D.C. In 1966 he joined the staff of the Massachusetts Institute of Technology Laboratory for Nuclear Science as Project Manager for the MIT 400 MeV Electron Linear Accelerator.

Mr. Reardon assumed his new duties at NAL on April 9; he will work from an office in the Cross Gallery near the Main Control Room. The work of the Accelerator Division will be closely coordinated with the work of James R. Sanford, Associate Director for Program Planning, and with the Operations Section, headed by Halsey Allen.

Reardon commented this week on the current status of the accelerator, saying:

"In the short time since the accelerator reached 200 BeV just over a year ago, the performance has improved markedly, achieving twice the original design energy and now providing beam to four experimental areas, each of which has 4-6 experimental set-ups.

"The problems we face now are the problems of making the machine a more reliable research tool and of bringing the intensity up from its recently achieved level of 2.5×10^{12} particles per pulse to its design value of 5×10^{13} p.p.p. Hopefully, we can achieve this factor of 20 within the next year as improvements are made to the Booster, the Main Ring, and the extraction apparatus."

He also said:

"At the same time, we must provide the best possible beam we can to support the ambitious research programs now underway. I hope that with the improvements we plan in the Main Ring power supplies, we can at least make a few forays above 400 BeV within the next year and still not lose sight of longer range goals such as the energy doubler.

Plans for the Accelerator Division are indeed ambitious," he noted. "But the group assembled by Bob Wilson, Don Young, Phil Livdahl, and Lee Teng has already demonstrated its extraordinary ability to both rise to the challenges given to them and to invent new ones when they have achieved the old. The group has technical competence second to none in the world and exhibits high morale even when the going is rough. This was most recently exemplified during the January-February 300 BeV run when they broke their own intensity record on three successive days."

Paul and Pauline Reardon live at 1483 Morse Street, Wheaton. They have seven children. Christine, 20, is a student at Northern Illinois University. Barbara, 18; Jocelyn, 14; Paul, 16; Thomas, 12; Kevin, 9; Sean, 8, all attend Wheaton schools.

MAKE YOUR MARK AT NAL -- PLANT A TREE!

Arbor Day, set aside 101 years ago as a special day on which to plant trees and generally beautify the landscape, will be celebrated at NAL on Friday, April 27. On that day, all AEC, DUSAF, NAL, B & H Janitorial, and Site Patrol employees and visitors are encouraged to plant trees on site. This year something new has been added, according to Site Manager Rudy Dorner. Those who participate in the annual event will have a permanent marker, containing their name and the date, placed on the tree they plant.

The locations for this year's trees haven't been selected yet -- the weather will have some influence on that. Everyone is invited to meet at The Village Barn at noon, bringing a shovel. The trees, of course, will be provided by NAL. They'll include crabs, hawthornes, weeping willows, and many varieties of evergreen. For the larger specimens (some up to 12 feet tall) holes will be dug ahead of time. For the others, a little work may be necessary to earn the right to one of those markers.

In case of rain, the planting will take place on Tuesday, May 1.

NOTES FROM NALREC

NALREC would like to sponsor a 16-inch softball league again this summer. Any interested men should call Mark Kibilko, Ext. 3453, by May 18.

All of the regular players in the NAL golf league have been notified of their team assignments. However, substitute players are still needed. The League plays nine holes every Friday afternoon at the St. Andrews Country Club, beginning at 5:15 p.m. Anyone interested in playing should contact Bob Kocanda, Ext. 3728. Spectators are welcome to attend the matches.

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IN THE NAL AREA . . .

The College of DuPage, Glen Ellyn, will be the scene of an unusual musical event on Friday, May 4, at 8:00 p.m. Captain Ben (the beard) Schlossberg will present a concert from his ten-story tall hot air balloon, 150 feet above the ground. In the balloon with him will be a Moog synthesizer, an electric piano, and two tape recorders. He will also have a light show, complete with cloud-making machines, colored gasses, and fireworks. No admission charge. For further information, telephone 858-2800, Ext. 243.

A community Arbor Day picnic will be sponsored by George Williams College, Downers Grove, beginning at 10:00 a.m. on Saturday, April 28, on the campus. The picnic will provide an opportunity to learn about the Environmental Awareness Program that the college will establish in cooperation with the National Park Service. Tours of the site for the new Environmental Education Center and Park will be held hourly. A picnic lunch will be served from noon until 3:00 p.m. at \$1.75 per person. For additional information, telephone 964-3100, Ext. 260.

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CLASSIFIED ADS

FOR SALE - 1965 Ford Squire Wagon, p/s, p/b, factory air cond., 8 track stereo, tinted windows, new trans., no major repairs needed, \$300 or offer. Call J. Thompson, Ext. 3355 or 859-2089.

FOR SALE - 35-piece set of Libby glassware - \$5; one pair of living room lamps - \$10 for the pair; one mirrored what-not shelf - \$8. Call Roger Braun, 584-2154.

FOR SALE - Bolens Walking Tractor plus disc, 1½ h.p. motor; watch repair equipment set. Call M. Kampikas, Ext. 3377 or 879-1712.

FOR SALE - 3-4 bedroom house with 2 baths, Batavia - Woodland Hills. Beautiful 0.8 acre lot with mature trees. Call Bryant Lemon (DUSAF), 879-2379.

TO SUBLEASE - 1-bedroom apartment, carpeted; cooking and heating gas furn., swimming pool, air cond. Deposit can be negotiated. Call B. Shumate, Ext. 3654 or 851-6210 after 5 p.m.

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