



An Autumn, 1969 aerial view of the National Accelerator Laboratory site, looking east-south-east. Excavation and clearing work outline the Main Accelerator and the road inside it. The Linac, Booster and Cross Gallery are at the lower left. The NAL Village is above and to the left of the Main Ring. Wheaton, Warrenville and The East-West Tollway are at the top of the view. (Photo by Don Mendenhall, NAL)

NAL Starts Work On Main Ring Enclosure

An informal ground-breaking to mark the start of construction of the Main Accelerator — the largest single component in the NAL accelerator system — was held under sunny skies on the NAL site at 11:30 a.m. Friday, October 3, 1969.

Robert R. Wilson, NAL's director, turned the traditional first shovel of earth for excavation to begin on the Main Accelerator Enclosure as members of the Main Ring staff and employees of DUSAF and sub-contractors watched.

The earth was firm and the atmosphere bright as the formal start of work began on the main accelerator enclosure for the world's largest scientific instrument — the 200 Billion Electron Volt proton synchrotron. The Main Accelerator enclosure will cover an area approximately four miles in circumference and 1.24 miles in diameter on the 6,800-acre NAL grounds.

Actually, work had begun on the excavations for the Main Ring enclosure about 10 days before to take advantage of the Autumn weather's favorable atmosphere for construction workers.

Award Contract

A \$3,428,917 contract had been awarded several weeks before by DUSAF to Schless-Madden Co., Inc., of Batavia, for Phase One of the Main Accelerator. It covers one-sixth of the Main Accelerator work.

Among others who took part in the ground-breaking were Parke Rohrer, DUSAF's project manager for NAL; Robert Schless and Thomas Madden, the sub-contractors, and Thomas Collins, Associate Director of NAL.

Work also is in progress on the Main Ring road and it is estimated that the entire Main Ring job, as of September 30, was three per cent completed — or, on schedule.

Start Main Ring Prototype

Meantime, members of the Main Accelerator staff working in the NAL village are developing prototypes of components for the Main Ring. The first 20-foot B-2 bending magnet has been completed in the NAL Laboratory. Valuable information has been

obtained on coil tolerances in assembly, on assembly techniques, and on the mechanical behavior of the complete structure. This magnet will be used in testing of measuring systems and testing of the magnet installation vehicle.

A new and simplified method of fabricating bending-magnet coils, suggested by Robert Sheldon, is being tested. The coil for each magnet will be built as three separate coils, a 4-turn inner coil close to the beam where accurate tolerance must be maintained, and two outer "window" coil that can be built to standard commercial tolerances. All three coils will have saddle ends, rather than the previous T ends.

B1 Magnet Re-Designed

In the new design, the B2 magnets will have slightly altered dimensions. In the B-1 Magnet, it has been found that significant cost saving can be achieved by changing from a 24-turn to a 12-turn coil. Magnetic redesign of the B1 magnet for this change is almost complete.

NAL has rented a building in West Chicago, north of the site, in which to produce inner coils.

Ernest Malamud has been appointed co-ordinator of a task team on controls to supervise the design of the control systems for the individual accelerators and for the accelerator or facility as a whole.

Linac Enclosure 75% Done

Meantime, work continues somewhat ahead of schedule on the Linear Accelerator Enclosure structure on which the first NAL groundbreaking was held last December 1. The walls and roof of the equipment gallery are almost complete. It is estimated that the effort is about 75 per cent finished.

On the Booster enclosure, the underground-enclosure structural work has been completed over most of the circumference and earth backfill placed. Work has begun on the linac extension and on electrical utilities in the enclosure. The Booster building is about 40 per cent completed and is on schedule.

Structural erection is underway on the Cross Gallery, with the

(Continued on Page 3)

Physics Research Unit Set Up

Thomas O. White, physicist with the Experimental Facilities Section since March 1, 1968, was recently named to serve as administrative head of the Physics Research Section.

Explaining the purpose of the new group, White said, "It is the Laboratory's policy that high energy experimental physicists be assigned to work in one or another of the component sections' at NAL. Over a number of years they (the physicists) are expected to devote about one-half of their time and effort to the planning and development of the accelerator, the Laboratory, and its facilities. They are also encouraged, if they wish, to devote the remainder of their time to the pursuit of their research interests in high energy physics. Toward this end, the Physics-Research Section provides an administrative home for the planning and carrying out of this research."

Dr. E. L. Goldwasser, Deputy Laboratory Director, serves as Acting Head of the Physics Research Section. His staff includes engineers, technicians, and film scanners who are assigned to support various approved experiments.

Current Activities

In addition to carrying out their own experiments, physicists plan seminars sponsored by the Section, and serve in various administrative and advisory capacities.

Current Laboratory-based activities directed by the Physics Research Section include the development of shop facilities, an electronic equipment pool, and a film facility, in addition to the building of experimental apparatus to be used in existing research programs.

Equipment Pool Started

A Physics Research Equipment Pool (PREP) is being initiated to serve the needs of the Physics Research Section. At the time the accelerator begins operation, this pool will become the responsibility of the Experimental Facilities Section and will begin to



Thomas O. White

serve both users and NAL physicists in the NAL research program.

Experiments are being set up or run at other accelerators around the country: The Berkeley Bevatron, the A.G.S. at Brookhaven National Laboratory, and the Z.G.S. at Argonne National Laboratory.

According to Dr. White: "These experiments are extremely important from two points of view. First, in their own right, they are expected to increase our understanding of how high energy particles interact. In addition, the experience and insights gained will contribute to the shaping of an effective experimental program here at the 200 BeV Accelerator."

Name Site Manager

Rudolph Dornier, formerly head of planning and development for the State of Illinois' Department of Conservation, has been appointed Site Manager at NAL.

Dornier, who joined the NAL staff October 1, will be responsible for general management of the 6,800-acre site in Du Page and Kane counties on which the Laboratory is being constructed.

Crews working under Dornier's direction will develop pasture land and recreation areas, plant trees and shrubs and maintain some 24 miles of road surface on the NAL site (and perhaps herd buffalo!). In addition, the management of the Village will be under his supervision.

Dornier, who plans to move his family from Springfield, Illinois to the St. Charles area, holds a bachelor's degree in forestry from the University of Illinois, Urbana. He plans to work toward a master's degree in public administration at the University of Illinois Chicago Circle campus.

Dornier joined the Illinois Department of Conservation at Springfield as a park management coordinator in 1963. He became assistant supervisor of state

parks in 1965. In March, 1969, he was appointed acting supervisor of state parks. In May, 1969, he became chief of planning and development for the state park system.

A member of the Society of American Foresters and the National Audubon Society, Dornier's hobbies include nature study, hunting, fishing and gardening.

Dornier is married to the former Susan Ryden. They have a son, Steven Christopher, 7.



Rudolph F. Dornier

'The Right Atmosphere' ...

What are the conditions that provide for the intellectual climate for a great scientific laboratory?

In one of his periodic talks to the entire staff of the National Accelerator Laboratory, Dr. Robert R. Wilson said:

"If you don't have the right atmosphere in the laboratory, then nothing happens, and it is very easy for nothing to happen.

"Atmosphere involves a lot of things. I guess the first thing that you absolutely must have in the laboratory is an atmosphere of freedom, freedom and respect."

Dr. Wilson spoke to the employees of the Laboratory at a mid-morning gathering Wednesday, October 1 which was held in front of the Director's office in the NAL Village.

On the subject of the atmosphere of the Laboratory, Dr. Wilson continued:

"Everybody is here to do a particular job. If any of you do not do your jobs, then the Laboratory won't work.

Also, Dr. Wilson said, there must be self-respect "... everybody here is contributing in some way to the object of this Laboratory. Each one of us has a contribution to this job and I hope that we will all identify with the project ... I don't think we will have the ingredients for real success as a laboratory without this feeling of respect, and perhaps this announces our goal to the extent any sociological goals can be announced; namely, respect for each other and respect for ourselves.

Donald E. Young: Linac's Accelerator

By Helen Severance

In the truest sense of the word, Donald E. (for Edward) Young is a physicist with a mission. The respected section leader of the Linac group has many qualities—among them: Determination, Enthusiasm, Ability.

When Robert R. Wilson was named Director of the National Accelerator Laboratory early in March of 1967, he started immediately to plan for and to recruit his staff hoping to attract top people in the Midwest scientific community as well as from the east and west coasts.

Because building an accelerator, whether it be a 28, 32 or 76 BeV accelerator, is not an everyday occurrence, physicists, engineers and technicians who have had previous experience in the construction of such a scientific instrument, comprise a relatively small group of people.

In recruiting the staff to design and construct the world's largest accelerator Dr. Wilson was, naturally, interested in getting the very best men available to do the job. When it was decided that a linear accelerator would be the first injection system in the 200 BeV accelerator, the field of competent physicists was further narrowed to those who had had experience in designing and constructing a proton linear accelerator.

Donald E. Young was such a person, having worked on the design and construction of a 68 MeV proton accelerator at the University of Minnesota. "Don was the man I wanted to head the Linac Section of the National Accelerator Laboratory," said Dr. Wilson. "He was my first choice and luckily, for NAL, he accepted the invitation and the challenge." (Incidentally, Donald Young's payroll number is NAL-2.)

Illinois Background

Don is a local boy, if you want to generalize and call the Midwest "local". He was born and raised in Lake Zurich, Illinois and is a graduate of Ripon College, Ripon, Wisconsin, receiving his Bachelor of Arts degree in 1946. He started his graduate studies at the University of Chicago, but in 1948 he transferred to the University of Minnesota at Minneapolis where, as a research assistant in the Physics Department, he worked toward his Master's degree which he received in 1951. It was here at the University of Minnesota that he started working on the 68 MeV proton linear accelerator which was the first multi-tank proton linear accelerator, containing three tanks.

While studying for his PhD at the University of Minnesota, he was also working in the research laboratory of General Mills, Inc., on such problems as food sterilization, radiation source and computer problems. As a result of this research, he co-authored an article with Raymond Paschke and Robert W. H. Chang, entitled "Probable Role of Gamma Irradiation in Origin of Life", a most

interesting and provocative subject.

Don received his Doctorate from the University of Minnesota in 1959 and continued his research with General Mills. Shortly thereafter, he joined the staff of Midwestern Universities Research Association (MURA), Madison, Wisconsin, where he worked on the 50 MeV Fixed Field Alternating Gradient Synchrotron, designed a 200 MeV proton linear accelerator, which is the type that will be used at NAL. He also contributed to the Title I study on a 200 MeV linear accelerator for the Argonne National Laboratory Zero Gradient Synchrotron (ZGS). He participated in many studies to improve the performance of the ZGS, mainly in the area of the linear accelerator injector.

In February, 1967, Don joined the staff of the University of Wisconsin at Madison, Wisconsin, as a Professor in the Nuclear Engineering Department; still working with MURA until its dissolution in July of 1967. On May 22, 1967, he came to the National Accelerator Laboratory as head of the Linac Section.

Busy Family

The Young family interests and hobbies are varied. Until recently the family numbered in the thousands including a dog, a cat, several rabbits and 10,000 bees! The bees have been given away because, according to Don, "The neighbors were a little uneasy", which is probably the understatement of the year.

For many years, Bille, Don's wife, has worked with the Girl Scout organization as a leader, trainer, service unit director and, of course, as Cookie Chairman. She is looking forward to attending the National Girl Scout Convention in Seattle the latter part of this month. Both Linda, age 17 and Patricia who is 13 are active "scouters".

The Young Youngs

The young man of the family, Phillip, age 11, is a Boy Scout and has started his business career in the newspaper field delivering the



Donald E. Young

weekly Downers Grove Reporter

The entire family enjoys the outdoor life with skiing a favorite winter sport and camping the summer interest. A highlight of this past summer was a four-day camping and canoe trip down the Flambeau River in Wisconsin.

Every Day New

If you ask Don what his typical daily schedule might be he will answer, "There's no such thing as a typical schedule. Every day brings new ideas that have to be worked out, new problems that have to be solved, new ways to surmount sudden obstacles; it is a constantly changing schedule and one that, because of the element of change, becomes more interesting every day".

"Achieving the 10 MeV beam on schedule has to be the most challenging aspect of the work on the linear accelerator thus far", stated Don, as he reminisced about all that went into this never-to-be-forgotten moment in the history of the NAL. Many months of planning preceded the birth of the beam.

Target Date Set

During the latter part of September, 1968, on a cold, windy day, Dr. Robert Wilson, Dr. Francis Cole and Dr. Donald Young met at a picnic table next to the Director's office to make long-range plans for the first beam. The date that was first set was September, 1969 — a year from the date of this important meeting. After much discussion, re-planning and re-plotting, they thought it might be possible to achieve a 10 MeV beam in nine months and the month of June became the target. The actual day of the month — June 26, 1969 —

was chosen six weeks prior to the arrival of the beam.

Physicists, engineers, draftsmen, technicians and secretaries all worked together to achieve this goal. As Dr. Wilson stated in his talk to all NAL employees on October 1, 1969, "As the deadline came near, it got very dramatic. If you went over to the Linac Building, you saw the place just crawling with people. It was clear that they were having a rough time, so people from all parts of the Laboratory went up — secretaries were in old clothes, the AEC people were up putting wires together, and it was a very dramatic business." Many weeks before the arrival of the first proton beam, technicians worked night shifts, many employees stayed around the clock, sleeping on cots for a few hours, components were rushed to O'Hare Field to be flown to their plant of origin for further processing, flown back and installed the following day and, at the very last minute, a supply of sulphur-hexafluoride had to be found locally to replace that which had deteriorated inside the pressure vessel insulating the accelerator column.

It was a watchful and waiting time — a time when patience and understanding often times took the place of progress; but, it was an exciting time. Above all, it was a time when Donald Young was always willing to work as hard and as long as his team was working; a time when motivation was the key word and Donald Young, the motivator.

In the early morning hours of Thursday, June 26, 1969, after several false labor pains the previous weekend, at precisely 2:22 a.m., the first 10 MeV beam was born. Right on target! and, the "most happy fella" was Donald Young. No words had to be spoken as the beam appeared on the oscilloscope. The excitement and joy of the moment was reflected in his expression.

In speaking about this exciting time, Dr. Wilson expressed the feelings of the Laboratory staff when he said, "... happily the Linac people just came sailing through and made their schedule. They made a machine and that is something we can all really be quite proud of because they had made a very complicated machine in an extraordinarily short time and made it give protons; made it work".

On or about October 17th the Cockcroft-Walton type pre-accelerator is due to arrive from Switzerland at the Port of Chicago and, hopefully, it will be put in place in the new Linac building which is nearing the end of construction and will be ready for occupancy toward the end of December. When the building is complete, the Linac group, who were the first pioneers in the NAL Village, will, once more, have the distinction of pioneering at the permanent site of the accelerator and they will be ready for their next target date which has already been set — a 200 MeV beam by February, 1971.

"This is a scary date," said Don. "It is much harder to arrive at since many things could stand in the way of achieving this type of goal; money, machinery, manpower, to name a few." At the present time, the Linac group numbers 37 people and is composed of physicists, engineers, designers, draftsmen, technicians and secretaries. Again, the Linac Section is working as a team to meet another deadline; another step, a giant one, in the building of the world's largest accelerator.

If this sounds as if it might be too much to expect; perhaps a dream — ask the man who owns one — Donald Edward Young, a man with a mission!

A Young Idea

NAL's Donald Young, chief of the section assigned to build and operate the Linac, is a scientist with many interests.

Twelve years ago, Young was a co-author of a scientific paper on "The Probable Role of Gamma Irradiation in Origin of Life." The paper was published in SCIENCE for May 3, 1957. At the time, Young was a member of the research staff at General Mills Research Laboratories in Minneapolis, Minn. The other authors were Raymond Paschke and Robert W.H. Chang.

The paper in Science said, in part:

"This article reports the production of simple organic compounds, including at least one and possibly two amino acids, from ammonium carbonate by gamma irradiation from a cobalt-60 source. To our knowledge, this is the first instance in which amino acids have been obtained directly from completely oxidized forms of carbon in the absence of free hydrogen. In our opinion, gamma irradiation from terrestrial sources is a much more probable agent than lightning and sunlight for the generation of most of the so-called "organic milieu", the nonliving mixture of carbon compounds which is generally considered to be a prerequisite for the origin of life.

"Ionizing radiation can, of course, cause the destruction of organic compounds as well as their formation. One can assume, therefore, that organic substances would not concentrate on even a sterile earth unless some great shield were available to protect them once they formed. The seas could be this shield. Inorganic and simple organic compounds on or close to radioactive sources, especially gamma emitters above or below the sea, could be transformed into amino acids. These amino acids with the help of rain and ocean currents, could migrate to dark, nonradioactive areas, where, as suggested by Bernal, they could be accumulated and oriented by absorption on clays or quartz (as sand).

"There appears to be little doubt that enough radioactivity to accomplish such reactions existed after the earth had cooled sufficiently to permit condensation of the water vapor to form the oceans. An upper limit on the irradiation time may be obtained if it is assumed that the terrestrial radioactivity was the same as it is today. Indeed, if we consider only the three major series allowances for decay would not result in significantly greater magnitudes. High-activity ores existing today could deliver the necessary radiation doses in tens of years.

"No doubt amino acids are being formed by physical processes even today. However, they or the rest of the physically formed organic milieu can no longer accumulate as they did in a sterile world. The present bios zealously guards its birthright and quickly devours any molecules that could give rise to a contender."

NAL Village Crier

Published for the staff of the National Accelerator Laboratory by the Public Information Office of the Laboratory located at 16 Sauk Boulevard, NAL Village, DuPage County, Illinois. Mailing address: P. O. Box 500, Batavia, Illinois 60510. Telephone: (312) 231-6600, Ext. 353. Editor, Carl W. Larsen; News Editor, M. Pearson; Community Relations, Kennard Williams; Photographer, Anthony Frelø.



Frank Cole, Don Young, and RRW (L to R) map Linac plans.



Main Ring 'ground-breaking' crews laugh as RRW exhibits ground worm he discovered in his diggings.

Start Main Ring

(Continued from Page 1)

work about 15 per cent completed.

In Radiation Physics, the first phase on the experiments to measure soil activation by strongly interacting high-energy particles has been underway. The preliminary results appear to show that there will be no special problems with contamination of underground water under the extraction straight section in the Transfer Hall.

Task Forces Started

Experimental Facilities: Task forces have been organized within the section to work in detail on various aspects of experimental utilization. There are task forces on Experimental Areas 1 and 2, on secondary-beam design, shielding, magnets, beam systems, detectors, and on spectrometer systems. These groups will start from the 1968 and 1969 Summer Study reports and develop firm plans in their areas of responsibility. A series of regular meetings is planned with physi-

cists from other institutions to review and develop further the work of these task forces.

Notices to proceed have been issued on Phase II of the Cross Gallery for \$678,428 and on Phase II of the Utility Plant for \$760,000 and the Enclosure Piping (\$137,000) in the Booster and Utility Plant areas.

A Theoretical Physics Section has been established at NAL. Five physicists have joined the Laboratory staff as the first members of this new group. David Gordon is the acting head.

On September 30, the Laboratory had a total of 520 employees. Of these, 126 were engineers and scientists.

—Photo by Tony Frelo, NAL

The start of work on the Main Accelerator Enclosure at NAL was an inter-disciplinary affair. Here, the Engineers (in hard hats) meet with the Scientist - Administrator (holding shovel, bare-headed) in the midst of a former Illinois corn field after an informal ground-



breaking. Posing after breaking the earth are (left to right) Robert Schless, of Schless Construction Co.; Dr. Robert R. Wilson, NAL's director; E. Parke

Rohrer, project manager for DUSAF, and Thomas Madden, contractor. The Schless-Madden joint venture is the contractor for the first phase of the Main

Accelerator construction. In far left background stands Ernest Malamud, NAL physicist, as heavy machinery begins excavation.

9 NAL Staffers Attend Meeting in Russia

Nine members of the NAL staff attended the International Conference on High Energy Accelerators in Russia during late August and early September.

Those present from NAL were Robert R. Wilson, M. Stanley Livingston, Francis T. Cole, Roy Billinge, Thomas L. Collins, Philip V. Livdahl, Alfred W. Maschke, Frank Shoemaker and Lee C. Teng.

The following article on the visit to the U.S.S.R. was written by Francis T. Cole:

Nine of us from the Laboratory travelled to the Soviet Union in August to attend the Seventh International Conference on High Energy Accelerators. This conference is held every two years, with the site rotating among the Soviet Union, Western Europe, and the United States. We might hope to have the conference here at our Laboratory someday when it is the United States' turn to be the host.

This time the host was the Yerevan Physical Institute. Yerevan is the capital of Armenia, which is one of the republics of the U.S.S.R. — a little like one of our states. Armenia is in the south of the Soviet Union, between the Black Sea and the Caspian Sea. From Yerevan, you can see across the border into Turkey — what you see is Mt. Ararat, whose snow-capped peak was

made famous by Noah.

The conference was held, not in Yerevan itself, but in Tsahkadzor, 30 miles away in the mountains. Just outside the village of Tsahkadzor, the Soviets built a training camp to accustom their athletes to high altitudes for the Mexico City Olympics. We were quartered in rooms in dormitories and ate our meals at a central dining room.

Although living conditions were a little austere at the Olympic Camp, the conference was probably helped by the isolation. An important part of a meeting like this one is the informal conversation in the hallways, at the pool, and at meals. There were a lot of new things to talk about; not only are there large construction projects, like our own 200-400 BeV Accelerator and the CERN Intersecting Storage Rings, but there

is a great deal of work on research into new methods of acceleration. These methods, especially the "collective-field" accelerators being developed at Dubna in the U.S.S.R. and at Berkeley in our country, may well be the way the next generation of accelerators is built. Significant progress was reported in the development work on these collective-field accelerators.

Viewed Armenian Culture

Armenia has an ancient culture. Our hosts took us to see, not only scenic features, but also the services at the central Armenian church, museums, and the Armenian National Dance Troupe. Our wives went to visit an elementary school that teaches English to the children, in addition to the Armenian and Russian languages and alphabets that are taught in all Armenian schools.

Toured Soviet Laboratories

After the conference, we went on various tours, some to Novosibirsk in Siberia to see the work in Budker's institute, some to Leningrad to see the work in laboratories there. We all ended up in Moscow, where trips to various

laboratories were again arranged for us.

The people from the Laboratory came home in different ways; Tom and Sonia Collins and my family and I flew to London on Aeroflot, the Soviet airline, then to Chicago on an American airline.

Progress Since War

It is very hard to summarize my own impressions of the Soviet Union from such a short visit. Many things are poorly built and thrown together there, but they have made enormous progress recovering from the war, in which 25 million Russians died and great sections of the country were devastated. When they want to build something neatly and beautifully, they can do it very well. The palaces from Czarist days in Leningrad are wonderfully restored. They are an example of the Russian people's pride in themselves and their long, often violent history.

No Traffic Problems

The people in the cities where we were are quite prosperous. Their clothes are good and food is

abundant. They have few private cars. Cars are expensive and it appears that the Soviet government would like to discourage them to avoid the traffic problems that come with private cars.

Cities Clean

On the other hand, public transportation is far better than ours. The subways and buses are fast and cheap. They are also clean, unlike ours. In fact, Leningrad and Moscow are cleaner than American cities — the public doesn't litter at all.

All in all, it was a fascinating trip. It is a very centralized society, too much so for us, but they have made great progress in rebuilding their country, and they have a deep and well-deserved pride in their accomplishments. There was a neon sign on a building just across the Moskva River from our hotel in Moscow. It was not an advertisement, but a quotation from Lenin that in some way summarizes the Soviet Union:

"Communism equals Soviet power plus electrification of the whole country."



Mack M. Hankerson
on his mail route

The Library's Coming....

By Roger Thompson

To the Director's Complex, — that is. And upon its arrival the expectation is that library use will be substantially increased.

Those coming to meetings in the Complex will find it convenient to stop in a few minutes before or after. All laboratory personnel may well find that the more centralized location will encourage their use of the facilities.

Besides the latest journals in a variety of fields, visitors will find an increasing number of newly acquired books which should appeal to some of the diverse interests of NAL members.

Speaking of books, we are encouraging suggestions for the purchase of relevant books for the Library. Thanks to members of the Library Committee, and especially to L. J. Swank and other members of the Theory Group, we now have a large list of books to order. However, we welcome any suggestions which might aid in the construction of the Accelerator or, in a broader sense, help to build a working laboratory (as defined in Dr. Wilson's talk to all personnel in the October meeting).

To make a suggestion, please call us on extension 209 and request forms. If easier for you, send the book review or advertisement.

THE LIBRARY IS COMING! to the Complex. SEE YOU THERE?

A survey to determine just how NAL employees would be interested in taking part in a lunch period table tennis tournament is being conducted by Personnel.

Charles Marofske, Personnel manager, says that the tournament will be conducted during the latter part of November and extending into December. Marofske said that he would like to have "boy" and "girl" divisions, if possible.

Persons interested in taking part should communicate with Mrs. Jody Eskey, Personnel, before October 31.

The Mighty Proton...

In 1815, during the very early days of the modern atomic theory, the British chemist and physician William Prout suggested that all atoms were built up out of hydrogen atoms. Carbon atoms, for instance, weighed exactly twelve times as much as hydrogen atoms and so on. Prout suggested that hydrogen, as the primary substance out of which all else was built, be called "protyle," from the Greek words "protos," meaning "first," and "hyle," meaning "matter."

As more information was gathered, it came to seem obvious, however, that Prout's notions were wrong. The chlorine atom, for instance, was 35½ times as heavy as the hydrogen atom, and, at the time, chemists were certain there was no such thing as half a hydrogen atom.

Nevertheless, in 1896 and thereafter, it was discovered that atoms were made up of still smaller particles. Over 99.9 per cent of the mass hydrogen atom, it turned out, consisted of a single tiny particle located at the very center of the atom. The centers of atoms heavier than hydrogen were found to contain varying numbers of this particle, so that they were made up of hydrogen atoms (in a way) after all. An atom of chlorine turned out to be 35½ times as heavy as hydrogen, because chlorine was made up of two varieties of atoms. One kind weighed 35 times as much as hydrogen; the other kind, 37 times as much. Since the first type was three times as numerous as the second, the average weight was 35½.

In 1920, the British physicist Ernest Rutherford suggested that this centrally-located subatomic particle be called a **proton**. This was a deliberate tribute to Prout's "protyle," with the substitution of an "on" suffix since that suffix had become conventional for particles within the atom.

The protons and neutrons, which are the heavy particles in an atom, are all concentrated in a very small central region of the atom, while all the outer regions are taken up by the very light electrons. Alpha particles plow through the electrons with no trouble but every once in a while one will strike the tiny central portion and, as Rutherford observed, bounce back. This distinguishes it from the structure in the cell, it is called the atomic nucleus.

"Isaac Asimov, Words of Science and the History Behind Them. (Signet Reference Books, 1959)

Fire Destroys Farm On Site

A farm home and a nearby shed were destroyed by fire near the northeastern end of the NAL site Sunday morning, October 5.

Batavia firemen received the alarm at 6:21 a.m. and sent three engine companies to the scene, just west of the Elgin Joliet and Eastern R.R. tracks on Wilson street. F.C. Richter, Batavia's fire chief, said the home was completely ablaze when the fire companies arrived. Two companies from the West Chicago Fire Department joined in fighting the blaze.

Firemen were able to save the barn, garage and crops in nearby fields. The intense heat and flying sparks twice caused fire in the garage. The house was vacant at the time. No damage estimate has been made.

USAEC 200 BeV Accelerator Facility Office Notes

By Minerva Sanders

Fred C. Mattmueller, our Deputy Area Manager, just returned from Boulder, Colorado, where he attended the "Symposium on Procurement Management." This Symposium, which lasted for three days, was held at the Harvest House Motor Inn.

Ron Zeitler brought out his "bag" Friday, September 26, and really "did his thing" at the AEC-CH Golf Tournament for 1969, which was held at the Glen Eagles Country Club. Ron won the 2nd Flight Low Net and was presented with a beautiful trophy.

If you happen to see Marilyn Bailey and Pamela Bassett, our work study helpers, on the corner selling candy; or in someone's gangway washing cars; or find them knocking on your doors, saying "Avon's calling," please don't get excited. We haven't fired them and they're still working at the Area Office. Seriously though, Marilyn and Pam, along with their Office Occupations Coordinator, Miss Rhonda Quinn, and twelve other students in their Office Occupations Class at the East Aurora High School, are trying to raise \$1,200 to finance a seven-day trip for the entire class to attend the National Office Education Convention. This Convention, which was held in Chicago last year, will be held in Ft. Worth, Texas during the week preceding the Easter vacation. We wish the best for the girls in their efforts, and feel confident that they will reach their goal. Don't forget to send us a post-card girls.

On September 23, Vernon Kenney, our General Engineer, was presented with a 30-year pin and

Certificate by Mr. Kenneth A. Dunbar, Manager, Chicago Oper-Awards Luncheon. Mr. Kenney began his Government service on the East Coast and worked in various offices across the United States, including the Los Alamos Scientific Laboratory, the Nevada Test Site, and the Palo Alto Area Office. He also spent some time in Marshall Islands in the Pacific. We extend our congratulations to you, Mr. Kenney.

Dawn Pitts, secretary to Jack Kiefer and the administrative staff, will complete one-year's service with the AEC on October 21.

Have you noticed Ron Hosford's new walk since we told him how distinguished he looks with the moustache he's growing... And then there's Ron Zeitler, sporting his newly-acquired beard. I believe this was brought about by one of the salesmen calling Ron, "Dr. Zeitler."

On September 12, Mr. Clarence S. Sochowski, State Director for Illinois U.S. Savings Bond Division, Treasury Department, presented Mr. Mattmueller with a Citation for the Area Office in recognition of our 100% participation in the purchase of Savings Bonds through the Payroll Savings Plan. (Gee, pretty soon we won't have room to hang up many more awards.)

My daughter, Antonette, won three tickets from the McDonald Hamburger Chain to attend the Bozo Circus which was held on Saturday, October 4 at the Medinah Temple in Chicago. It usually takes about four years to obtain tickets for this Circus, so you can imagine how lucky she was. The Circus was very nice, and it will be aired on Channel 9 at 6:00 p.m., on Sunday, October 19.

Autos & Phones...

By Doty Stevens

A warm welcome is extended to Ernest Guzman, a new member aboard the T.C. crew. Ernie will be Macks right-hand man in the Mailroom, helping to see that everything runs like "clock work". Good luck, Ernie!!!

Hearty congratulations to Ernie Barrick, who has just returned with his new wife from a honeymoon trip to Canada. Ernie says the fishing was a bit disappointing. He is now taking lessons from his wife!!

We also have with us now, Jim Lasenby, who was formerly with the Linac group. Jim is our new switch-board operator from 4:00 p.m. to 12:30 a.m. Glad to have you with us, Jim.

A canine and a feline (affectionately known as "Puss" and "Boots") have found a home with the T.C. Family. Although only 11 weeks old, they carry out the duty of receptionist for the clean-up crew during the work week and reside at the Steven's residence on week-ends.

Site Planning By DUSAF

DUSAF's civil engineers have been studying and developing a plan for utilizing the natural resources that will satisfy the requirements of the Laboratory. This development will adhere to depletion and pollution standards which will be more stringent than the current laws stipulate.

The biggest demand on natural resources will be water for industrial cooling. Fox River water will be the primary source for satisfying this need. Pursuant to the National Accelerator Laboratory's firm conservationist path, DUSAF engineers have designed a series of catchment basins which will collect onsite runoff waters as a supplementary source for supplying industrial cooling and fire water supply. Each catchment basin will have overflow facilities capable of handling major flood flows.

Demineralization facilities are planned to clean up the industrial waste waters for reuse, giving up water only through cooling evaporation and process losses. By using this method of treating industrial waste there can be no polluting surrounding rivers or streams.

On-site shallow wells will supply potable water to meet the needs for human consumption, light laboratory use, cafeteria facilities, sanitary facilities and irrigation. These wells drilled into the shallow aquifers are expected to produce sufficient supplies for years to come without danger of depletion, and without effect on off-site water supplies.

In developing the site, much thought has gone into locating the road systems, utility buildings, corridors and drainage ponds so that the natural beauty of the landscape will be preserved.

Personals About DUSAFers

Architect Don Moll recently had the satisfaction of witnessing the dedication of the first "tot-lot" designed and built by the Wheaton Jaycees. Don, Director of Community Development for the Jaycees, saw his design for the children's creative play center executed by the manual labor of other Jaycee members, nearly all of whom were inexperienced construction workers. "What they lacked in experience was made

up in sheer determination," Don quipped.

Lucille Heide, Personnel Dept., just returned from 10 days in Greece. She was on a tour with the Chicago District Golf Association Grecian Golf Charter which made their tour headquarters in Athens, Greece. Among points of interest were trips to the Islands of Aegea, Poros and Hydra, and to the Parthenon, Corinth and Delphi.



Dawn Pitts



Ron Zeitler

First Aid Classes

First aid classes, sponsored by the American Red Cross, are being held in the NAL Village. The classes began Wednesday, October 22, and will run for eight consecutive Wednesdays. They are held from 1 p.m. to 3 p.m. in the First Aid House at 24 Sauk Boulevard. Fifteen employees are learning about general first aid including splints, shock, sprains and snake bites. Mrs. Dorothy Poll, R.N. is in charge of the class.

Costume Capers

The Fall "Costume Capers" will be held in the NAL Village cafeteria from 9 p.m. to 1 a.m. November 1. Ice, glasses and a midnight snack will be "on the house."

Awards will be given for the best female costume, best male, best couple, and most original costumes.

Anyone caught out of costume will be jailed by the "Sheriff."

NAL In Two Inner-City Exhibits

NAL's Personnel and Business offices took part in two major Chicago exhibitions to provide new opportunities for minority group businessmen in late September and early October.

On September 26-27, members of the Laboratory's Purchasing and Contracts sections manned a specially-designed exhibit at the Chicago Business Opportunity Fair — a unique effort to boost business activity of inner-city businesses owned and operated by minority group members.

Staff at Black Expo

On October 3, 4 and 5, NAL's Equal Opportunity Employment staff joined with DUSAF personnel in participating in the first annual Black Minorities Business and Cultural Exposition sponsored by Operation Breadbasket of the Southern Christian Leadership Conference. It was known as "Black Expo."

Both exhibitions were held at the International Amphitheatre, 43d and Halsted Streets, Chicago, in the city's stockyards area.

200 Area Buyers Attend

Thousands of men, women and children observed the NAL exhibits at the two exhibitions. The Business Opportunity Fair brought together some 600 inner-city businessmen — mostly black — with buyers representing approximately 200 major companies and government organizations in the Chicago area.

At the Opportunity Fair, the NAL exhibit was manned by Richard Auskalis, Willard Kautz, Edward West, Warren Gottwald and David Sullivan of the Laboratory's Purchasing and Contracts sections.

Search For Minority Vendors

Auskalis explained that the Laboratory was continuing its intense efforts to locate and assist minority businessmen to sell their products and service to NAL.

"The Laboratory has a wide variety of needs and we were pleased to communicate our plans and programs to scores of businessmen from the inner city."

The "Black Expo" exhibit featured photographs of members of the NAL and DUSAF staffs who are minority group members. It also stressed opportunities for minority contractors and vendors at the Laboratory. The trade fair, designed to "turn protest into progress" was formally opened by the Rev. Jesse Jackson, head of Operation Breadbasket.

EEO Staff Heads Exhibits

The NAL exhibit at the "Black Expo" was co-ordinated by Kennard Williams, NAL's equal employment and community relations officer, and Thomas Downs, DUSAF's chief architect. It was developed by Jose Poces of NAL, and by Geno Loro, and Don Llanuza, of DUSAF.

Others who took part in developing the exhibit and in manning the booths were Warren Cannon, Joyce Howell, Tony Frelro, Roy Rodriguez, Michael Hardy and David Sullivan, from NAL.

DUSAF staff members who assisted the exhibit included Robert Scott, McLowther Irving, and his staff, and Sara Larson.

NAL was the only major federally-financed construction effort in the Chicago metropolitan area represented at the "Black Expo."



Thousands of visitors stopped by the NAL exhibit at the Black Expo held in the International Amphitheater in Chicago in early October. Here two members of the DUSAF staff—Thomas Downs, chief architect, (in white jacket) and McGlothter Irvin (in black sport coat), explain the exhibit to an interested visitor. He is Illinois State Senator Richard H. Newhouse, with his children.



Warren Cannon, of NAL's EEO office, explains a part of NAL's Black Expo exhibit to Mrs. Earl Warren, of Aurora.

Some Tips On Dieting

by Dorothy Poll, R.N.

Since a large percentage of the employees at NAL are trying to shed some of the extra poundage they are carrying around, I thought that perhaps the following information would be helpful in dieting.

Obesity is definitely associated with both high blood pressure and diabetes. The American Heart Association recently announced that the American people must control the amounts of saturated fats and cholesterol in their diets if they hope to reduce the toll of heart attacks which are taking more than 570,000 lives a year.

There are many "crash" and "fad" diets available and in use for weight reduction, but the best way to lose weight is:

- (1) Change your eating patterns and habits to achieve your proper weight;
- (2) After losing weight and reaching your goal, develop a caloric intake that will maintain this weight.

The average diet in the U.S. contains approximately 600 to 1,000 calories a day MORE THAN the number of calories that a person normally burns up in a day. One pound of excess weight contains about 3,500 calories. Thus to lose one pound over a period of one week, it is necessary to lower

your caloric intake by 3,500 calories during that week's time.

For example, suppose you are 11 pounds overweight. In order to lose the 11 pounds over a given period of time, you will have to take in 38,500 calories LESS than you are presently eating.

Begin your diet by determining:

- (1) Your desired weight, based on your height, frame, and age.
- (2) Figure the number of pounds that you are overweight.
- (3) Multiply the difference between your present weight and your desirable weight by 3,500. This will give you the number of calories that you must cut in order to attain your proper weight. In other words, by this method, you keep track of the items in your present diet that you do not eat while trying to lose weight.

There are 22 foods which should be on your forbidden list if you really want to lose weight.

Bread	Jellies, jam
Butter	Noodles
Cake	Nuts
Candy	Oils
Cereals	Pastries
Chocolate	Potatoes
Crackers	Pudding
Cream	Rice
Custard	Soups
Gravy	Spaghetti
Ice Cream	Sugar

Harland Gerveske Hits 237 In League Opener

By Gayle Notley

The NAL Bowling League has gotten off to a spectacular start. At the close of the first half of the first round, Lott Coleman's team No. 11 is on top with a 3-game lead. Ruth Druschal's team No. 4 is in second place followed closely by Marilyn Paul's Team No. 2.

The first night of bowling Harland Gerveske started the season off with a high game of 237 which has yet to be topped this year.

The high team game is held by Ruth Druschal, Frank Sitar and

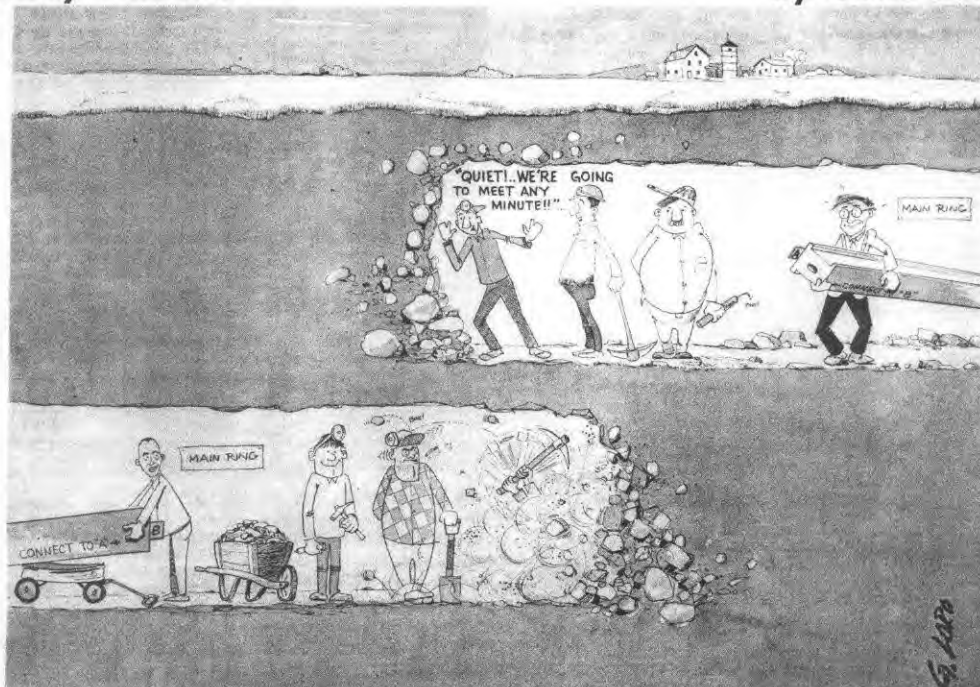
Mark Kibilko with a 588 scratch. High team series of 1592 goes to Jack Jagger, Doris Ferrell and Mike Hiit.

This is the first year NAL has had a sanctioned league. We have a number of good bowlers and this season promises a highly competitive race for first place.

Officers of the League are: Don Richied (Main Ring), President; Bob Wagner (DUSAF) Secretary-Treasurer; Gayle Notley (Village Management), Corresponding Secretary.

Stray Particles

by Geno Loro



New Members Of The NAL Family

The following biographical information on new members of the NAL Family covers those who recently joined the various scientific, technical and administrative groups. The information was prepared by Mrs. Jody Eskey, Personnel.

MISS CATHERINE BEYER of Batavia is a new clerk for Material Services. She is a graduate of Lauderdale High and attended Howard Junior College, in Florida.

MEIR BIRK moved with his wife Yehudith to La Grange at the end of August. In 1949 he received a degree in Electrical Engineering from the Israel Institute of Technology, Hebrew University, Jerusalem awarded him a Ph.D. in Electrical Engineering in 1952. He is now an engineer for the Radio Frequency group.

RONALD R. CURRIER, a resident of Hazelcrest, is working with Beam Transfer as an engineer. He attended several schools starting in 1955 with the U.S. Naval Service School and ending in 1965 at I.I.T.

WILLIAM H. DE LUCA received a B.S. and M.S. in Electrical Engineering from the University of Illinois (Urbana) in 1961 and 1963. He now lives in Hinsdale and is a new engineer for Beam Transfer.

MARVIN J. DE PEW is a new instrument machinist in the Technical Syncro group. He lives in Montgomery and attended Elgin High School.

JOSEPH T. DOWNEY, from Evanston, is a new programmer for Accelerator Theory. He received a B.S. in Math and Physics from I.I.T. in 1961 and an M.S. from Marquette University in 1965.

ROBERT J. EBL is a designer for Village Services. He received a B.S. in Landscape from the University of Newcastle, England in 1965 and now lives in Glen Ellyn.

JAMES A. EDWARDS, a draftsman for Beam Transfer, lives in Aurora. He attended Dixon High School then the Institute of Drafting and Technology in Morrison, Illinois from 1966-1968.

MRS. MELVA J. ELLIS is a telephone operator who can be found at Village Services. She attended Main Township High and St. Josephs Academy (Mt. Washington, Ohio). She now lives in Aurora.

MISS ANN ERICKSON is living in Naperville and working as a clerk for Village Service. She attended St. Louis Academy and DePaul University in Chicago.

MRS. ELIZABETH S. FAY is a new resident of Aurora and a new secretary for Contract Administration. She attended North Dakota State School of Science.

CHARLES D. GAUGER, a groundsman for Village Service was stationed in Alaska while in the U.S. Army. He now lives in St. Charles.

ANTHONY M. GLOWACKI holds two degrees from I.I.T., a B.S. in Mechanical Engineering ('47) and Electronic Engineering ('54). He is a member of the Illinois State Professional Engineers Association, and more recently an engineer with Main Ring.

ROBERT W. GOODWIN is new in St. Charles and at Theory where he is a programmer.

DAVID GORDON from Warrenville is a new physicist with the Theoretical Physics group. He re-

ceived a B.S. in Math from Mass. Institute of Technology ('60) and a Ph.D. from Brandeis University ('67, Theoretical Physics).

FRANK GUINCHARD got experience in electronics in the Air Force, and at the R.C.A. Institute in New York City. Now he's a technician with Linac. He is also a new resident in Aurora.

JAMES E. GRIFFIN recently became a resident of Batavia and a physicist with Radio Frequency. He has a B.S. in Electrical Engineering ('51) and a Ph.D. in Physics ('63) from Iowa State University. Before joining NAL he was an Assistant Professor at Iowa State and an Associate Physicist at Ames Lab.

OMER G. GUYER attended Marion High School (Ill.) and Indiana University. He now lives in Aurora and is a new clerk with Material Service.

WALTER J. HABRYLEWICZ is a new Main Ring electrical technician. He lives in Chicago and attended University of Illinois Circle Campus ('66) and DeVry Institute of Technology ('69).

RICHARD D. HAUSER from North Aurora is a new design draftsman for the Main Accelerator. He attended East Aurora High.

JOSEPH R. HEIM holds two degrees in Mechanical Engineering A.B.S. from the University of Pittsburgh ('57) and an M.S. from the University of Santa Clara ('69). He recently left California where he was a design specialist on missiles and space systems and moved to Batavia. He is an engineer with Experimental Facilities.

LAWRENCE A. JACKSON is a technician with Beam Transfer. He lives in Aurora and attended West Kentucky Vocational and Technological Institute in Paducah, Ky. from 1961-1964.

MILTON KAMPIKAS went to Wilson Jr. College and Allied School of Mechanical Trades in Chicago. He now lives in Batavia and is a technician for the Booster.

MICHAEL W. KARR is a new technician with Radiation Physics. He attended Griffith High School (Indiana) and DeVry Institute of Technology in Chicago. He is living in Chicago.

MISS BETTY KASTNER has a varied educational background, including Mundelein College (Chicago) where she studied math and the American Conservatory of Music where she studied piano. Now she is with Theory as a clerk. She lives in Aurora.

MRS. JOYCE A. KEIFER spends her days at Accelerator Theory where she is a secretary. She attended high school and the University of Maryland in Baltimore, Maryland. She is a new resident in Aurora.

MRS. JUDITH ELAINE KENNY attended Northern Illinois University in DeKalb '66-'69. Now she is a new clerk in Accounting. She lives in St. Charles.

GORDON R. KERNS holds a B.S. in Natural Science from Greenville College, Illinois. He also attended the University of California, Berkeley, where he studied Education. Now he is an engineer with Experimental Facilities. He lives in Wheaton.

BASSEL KEITLEWELL lives in Genoa. He attended high school in Michigan and was in the U.S. Navy. Now he spends his time as a machinist in Technical Services.

THOMAS L. LARSON is new in Technical Services where he is an instrument machinist. He attended Batavia High School and still lives in Batavia.

RUSSELL A. LAUER is an instrument machinist in the Central Machine Shop. He attended Lane Technical in Chicago and was in the Air Force. He lives in Villa Park.

ALBERT M. LEGAN JR. attended Joliet Central Township High in Joliet where he lives. He is a new Engine Lathe Hand in the Machine Shop.

JOHN F. LINDBERG is a new mechanical engineer with Beam Transfer. He attended the University of DuBuque (Iowa), Morton Jr. College (Cicero) and I.I.T., majoring in mechanical engineering. He lives in Elmhurst.

MISS VIRGINIA C. LINDQUIST of Lombard is a new secretary with Experimental Facilities. She attended Gregg Business College in Chicago.

MISS NANCY LEE LUPO is training to be a programmer in Planning and Scheduling. She graduated from St. Dominic College with a B.S. this year. She lives in Aurora.

JOHN D. MCCARTHY graduated from the University of Illinois with a B.S. in electrical engineering this year. Now he is living in Mt. Prospect and working for Beam Transfer.

MISS PATRICIA McDONALD lives in Glendale Heights. She studied English and Speech at Northern Illinois University before becoming a new clerk in Planning and Scheduling.

MICHAEL P. MAY is a new engineer in Radio Frequency. He received his B.S. from the University of Notre Dame (Mechanical Engineering, '68), attended UCLA and worked with Douglas Aircraft. He now lives in Aurora.

PAUL JOSEPH MELLICK from Chicago is a new Booster programmer. He attended the University of Chicago for three years.

RICHARD J. MIRDAS has studied Electrical and Physics Technology at Michigan Technical University and I.I.T. Now he is a technical specialist with Booster. He lives in Naperville.

JOSEPH MISTAL is a new accountant in Accounting. He attended Northwestern and lives in LaGrange Park.

HENRY J. MONACO of Aurora is a new instrument machinist in the Machine Shop. He attended the U.S. Naval Service School and is certified in Tool and Die making.

FRED D. MOORE is a new maintenance man with Village Management. He lives in Hinsdale and attended Oak Park-River Forest High School.

JERRY MURPHY is with Linac as a technician. He studied electrical engineering at I.I.T. in Chicago where he lives.

ROBERT JOHN OLAH is a new senior draftsman in the Booster Group. He lives in North Aurora. Before coming to NAL he was a draftsman for Lyon Metal in Montgomery, Illinois.

MISS BONNIE J. ORTLIEB from Elburn is a new stenographer for Material Services. She attended Madonna High and worked for Exolow Company, both in Chicago.

JERRY L. PETERSON went to Batavia High School and now lives in Geneva. He is a new instrumental machinist with Technical Services.

KLAUS-PETER PRETZ is a new physicist with Experimental Facilities. He attended Gymnasium, Technische Hochschule, and the University in Munchen, Germany. He studied nuclear and particle physics. He and his wife Angelika are now living in Wheaton.

JACK J. RIFFELL attended East Aurora High School in Aurora where he lives. He is a material service clerk in Shipping and Receiving.

ROBERT E. SHAFER is new to Glen Ellyn and the Radiation Physics group where he is a physicist. He is not, however, new to physics. He holds a B.S. from Stanford ('58) and a Ph.D. from the University of California at Berkeley ('66). Both degrees are in physics.

GLENN D. SMITH of Aurora is a new instrument welder with Technical Services. He previously worked for the Todd Ship Yard in California.

JAMES H. SNOW attends Chicago Circle Campus of the University of Illinois studying electrical engineering and electrical engineering physics. He lives in

Justice and is a new technician with Booster.

ERNEST R. SONDERMAN, a senior draftsman with Booster lives in North Aurora. He attended I.I.T.

BRUCE P. STRAUSS, a new engineer with Experimental Facilities lives in Downers Grove. He holds a B.S. and D.S. in Metallurgy from Massachusetts Institute of Technology.

CARL A. SWOBODA previously with Argonne is a new technical specialist at Beam Transfer. He attended DeVry Technical Institute and lives in Lemont.

CHESTER ROBERT SZERLAG attended the University of Illinois (Urbana) and the University of Arizona (Tucson). Now he is a contract administrator for Contracts and Legal. He lives in Lombard.

SAMUEL J. UPTON, an engineer with Experimental Facilities, lives in Naperville. He holds a B.S. in education from Illinois State at Normal.

ALAN A. WEHMANN, a newcomer to St. Charles, is a physicist with Experimental Facilities. He received his B.S. from Rensselaer Polytechnic Institute ('62) and A.M. and Ph.D. from Harvard University ('63, '68).

DONALD J. WENDT is a new technician with the Main Accelerator. He attended Capital Radio Engineering Institute (Washington, D.C.) and has studied computer technology and radar systems. He now lives in Lombard.

CLARENCE E. WEST of Elk Grove Village is a contract administrator with Contracts. He holds a B.S. in Business Administration from Valparaiso University ('51).

MICHAEL ROBERT WILKS lives in Chicago and is a new lab technician with Booster. He attended Dunbar Vocational High School, Chicago.

CHARLES W. WILSON is a Main Accelerator draftsman. He attended Tri State College in Indiana and is certified in drafting and Design and Basic Electronics and Electricity. He lives in Aurora.

WILLIAM S. YOUNG attended the University of Illinois, Circle and DeVry Institute of Technology in Chicago where he lives. He is a new technician with the Booster group.

PETER P. ZAMIE of Wayne is a new Radio Frequency technician. He attended Elgin Community College.

JAMES ZIOBER attended DeVry Institute of Technology in Chicago where he lives. He is a technician in the Radio Frequency group.



Appointment of Mrs. Joeldene Eskey as NAL Activities Coordinator was announced recently by Charles Maroisko, Personnel Manager. Mrs. Eskey replaces Gloria Moore who resigned to accompany her husband to a new position in the East.

Answering a variety of re-

quests from new employees, Jody's office at 14 Sauk Boulevard serves as the center of information on available housing and community facilities in the area surrounding NAL. Classified ad sections from area newspapers are available as well as brochures and literature left by area realtors. Having lived in the Fox Valley all her life, Jody her-

self is a valuable source of "know-where."

Jody resides in Elgin with her husband, John, and three teenage children.

Currently, Jody is also helping the NAL Women's Organization get settled in their new on-site headquarters in the former White farm on Eola Road.

**Personnel
Office
Notes**

During the month of September the following personnel promotions were announced:

Ralph Mataya in Site Management; Carlos Velasquez, Joel Friedl, and Robert Haring in drafting; Leon Beverly, James Wendi, Gerald Ortlieb, Robert Kocanda, Raymond Hren, and Gregory Urban in technician categories.

Antonio Fuentes and Albert Legan in the Machine Shop; Roel Rodriguez in Personnel, and John O'Meara in Engineering for Technical Services.

James Klein, Anthony Tummilo, Henry Koecher, Leo Ray and Arthur Cook received promotions to Technical Specialists.

Sixty people were added to the NAL payroll during the month of September, 1969, bringing the total number of employees to 520 as of September 30th.

The following statement was issued by the Argonne Credit Union, which also serves NAL employees, on September 25, 1969:

Effective immediately the interest charged on loans by the Argonne Credit Union will be: 8% per year* (2/3% per month) on loans fully secured with Credit Union shares; 9% per year* (3/4% per month) on loans greater than \$1500 and fully secured by cars, trucks, trailers, stock, etc.; 10% per year* (5/6% per month) on unsecured loans (revolving loans; loans on vehicles valued at less than \$1500; loans on furniture, appliances, and equipment; loans to terminated members, and other loans at the discretion of the Credit Committee.)

This schedule is intended to serve only as a guideline. Actual rates to be charged will be determined by the Credit Committee at the time the loan is approved.

*True Annual Interest

Plans are being made to have representatives of the Argonne Credit Union come to the NAL site for regular office hours on a part-time basis.

Employees holding life insurance policies under the NAL group life insurance plan are asked to contact Mildred Meyer in Personnel if they are interested in naming a second beneficiary to their policy.

There is still time to sign up for playing in the adult basketball team being formed by Jim Thompson, Personnel. The team, to be known as the Protons, will play Tuesday and Thursday nights in an industrial league in the NAL area. Starting in November, the schedule will be played over a 16-week period. Uniforms will be issued as soon as the formation of the team is completed.

Forty employees signed up for study under the NAL tuition reimbursement plan. The majority of the students are seeking technical education related to their work at the Laboratory. Waubesa Community College claimed the most students (6); five will attend Illinois Institute of Technology; one the College of DuPage.

NAL employees participated in the Metropolitan Crusade of Mercy Campaign for 1969. Ralph Wagner of Personnel was the NAL leader for the drive which included the Community Fund of Chicago, the Mid-America Chapter of the American Red Cross and ninety-two suburban community chests and united funds.



national accelerator laboratory

Operated by the Universities Research Association, Inc. For the U.S. Atomic Energy Commission.

An Equal Opportunity Employer

HELP SPREAD THE WORD!

- * Interesting and challenging employment opportunities exist at the National Accelerator Laboratory.
- * The scientific, technical and administrative staffs at NAL are growing at a rapid rate. During the month of Sept. alone, some 55 new employees joined the NAL family.
- * At present, there are about 30 jobs of various kinds open at NAL. They are in a variety of areas within the Laboratory.
- * We ask your assistance in helping to fill these vacancies. Please spread the word among your friends and neighbors. Please encourage those you know with the qualifications and experience to apply for the following positions:

- * **Four Electronic Technicians**..... with Associate Degree or equivalent training needed in the Linac, Beam Transfer, and R. F. groups.
- * **Two Draftsmen**..... Electronic; two years experience or more; Main Accelerator, Booster
- * **Three Mechanical Technicians**..... High School, two or more years of mechanically - related experience. Beam Transfer, Booster, Main Accelerator.
- * **One Clerk**..... High School, general office work, typing; filing, telephone answering. Beam Transfer.
- * **Three Mechanical Engineers**..... Degreed with one to 10 years of mechanical component design experience. Linac, Main Accelerator, and R. F.
- * **Two Electronic Engineers**..... Degreed with one or more years of electronic circuit or other design experience. Physics Research and Main Accelerator.

Other positions in various groups at NAL for which we are seeking candidates include:

- * **Groundsmen**
 - * **Safety Engineer**
 - * **Machinist**
 - * **Internal Auditor**
 - * **Designer**
 - * **Personnel Representative**
- to establish in-house training & educational programs.

Please direct questions concerning these openings to NAL Personnel. We will be pleased to discuss these openings with you or with anyone who might be interested.

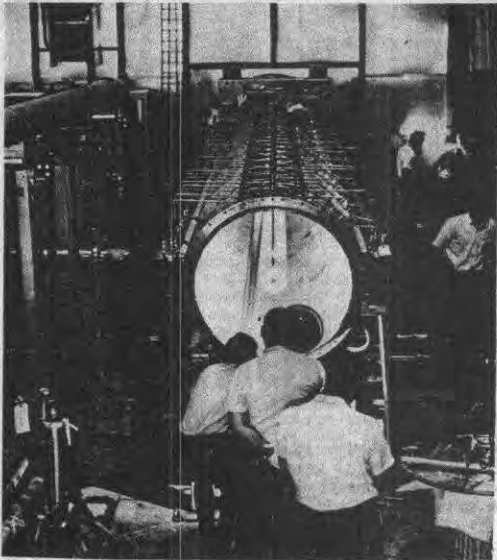
Candidates for any of these positions may write the following address for consideration:

Personnel Office,



**national
accelerator
laboratory**

P.O. Box 500 • Batavia, Illinois 60510



The Linac laboratory, in the NAL Village, houses a prototype linear-accelerator cavity made of copper-clad steel plates supplied by Lukens Steel Company, of Coatesville, Pa.

Shown here is a "telescope" view of the cavity as NAL staff members inspect the steel tank prior to closure. About 25 feet long and three feet in diameter, the all-welded steel tank is the first of a series that will make up the cavity for a 500-foot long linear accelerator in the NAL accelerator system. The thin layer of copper insures high electrical conductivity for the electromagnetic fields that accelerate protons during experiments.



The nine NAL scientists who attended the international conference on accelerators in the Soviet Union made their homes there in a dormitory such as that pictured above. Built as part of a training center for Olympic-bound athletes, the dormitories are at Tsahkadzor, about 30 miles from Yerevan, capital of Soviet Armenia. They are at an altitude of about 7,000 feet. The restaurant is at the right. This photo was taken by Lee Teng, of NAL. (See story on Page Three.)



Robert R. Wilson, director, speaks informally to about 400 members of the NAL staff who gathered October 1 in the area in front of the Curia in the NAL Village. (See story on Page 1.) Photo by Tony Frello, NAL.



—Photo by Joan Maute, NAL
HALLOWEEN AT NAL: Peter the Proton, a scarecrow who soon will become real on the fastest race track in Illinois (the NAL accelerator system), stands at the entrance to the Directorate in the NAL Village. His colleagues, at work and play, are Mrs. Phyllis Thompson and Miss Cynthia Szama. Peter was made from straws that were not thrown to the wind.

Classified Ads

This classified section may be used only by active employees of NAL, DUSAF, & AEC. Ad copy should be restricted to 20 words or less and typewritten. All items for sale or rent must be the property of the person submitting the ad. It must be understood that houses, apartments, or rooms for sale or rent must be available without regard to race, creed, color, or national origin. No ads will be accepted for resale in connection with a commercial enterprise. The Crier reserves the right to review all ads submitted for publication. Copy should be sent to Gloria Moore, Personnel, 14 Sauk Boulevard.

For Sale

BUICK LE SABRE 1966. 2 dr-H.T., Automatic, Power steering, Power brakes, Electric windows, New Firestone 500 WW's, AM-FM-SW Radio, Low Mileage, Excellent Condition. \$1695 or best offer. Call 879-2260 or 529-6671. Jim Ganensky

Sump pump, non-submersible with float \$10; Fan, window, 20" portable, 3 speed, 2 directions; \$10; Humidifier, portable, Sears, for large house, new pad, \$20; Phonograph, 3 speed, portable \$10. G. Duffy 326 Saffield Ct., Geneva, Ill. 60134, 232-4687.

19' C. B. Sloop sailboat cuddy cabin elect. outdoor, 2 sets sails; trailer with extra tire and wheel, fibre glassed over mahogany plywood. Built 1967, excellent sea boat, sailed in Kentucky Lake, Wonder Lake & Paw Paw Lake. \$1,800. H. Minster, 358-0309.

20" Roper gas range with window & clock. Used only 2 yrs., good condition. \$100; 3-way combination T.V., that does not work. Good for use as cabinet. \$5. Call 427-1822.

Matching Speed Queen washer & dryer in good working condition, 6 yrs. old; (reasonable) Tornado front & back Black car mats, 6 months old (cheap). Call Ext. 348 or 742-7413.

Men's Schweinn bike, \$50; ski boots; accordion, two French provincial chairs, Bar-B-Q grill, Kroehler arm chair, pole unit w/storage area. 223-1571.

18' wide (pleated width), 8' long rose-red drapes fully lined, excellent condition. \$45. Anne Buswell, 231-4103, or Ext. 381 (Experimental Facilities).

Instruction

Want to fly? If you are interested in forming/joining a flying club, contact Miguel Amschalom, Ext. 296. You need not be a pilot now.

House For Sale

Clarendon Hills, 4 bedroom Cape Cod house, paneled family room and kitchen, carpeting, full basement, 1 1/2 car attached garage, \$26,500. 223-1571.

National Accelerator Laboratory
P.O. Box 500
Batavia, Illinois 60510

U. S. Postage Paid
Non-Profit Org.
PERMIT No. 204
Batavia, Illinois



Aerial view of the NAL accelerator system "injection area." The Cross Gallery work extends downward from the Linac. Excavation for the Transfer Hall is at the bottom. The photo provides dramatic evidence of the progress in construction work at NAL since its initial groundbreaking last December 1. This photo is looking westwards; the Fox River and Batavia are less than a mile to the west. (Photo by Don Mendenhall, NAL)