



# NUCLEAR DIVISION NEWS

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 3 — No. 7

Thursday, May 11, 1972



EXECUTIVES VISIT — Union Carbide Corporation President Vanstrum, Nuclear Division Vice-President-Production; Roger William S. Sneath and Vice-President John A. Swartout visited F. Hibbs, Division President; Sneath, Swartout, and Alvin M. Weinberg, Nuclear Division Vice-President-Laboratory.

## Payroll figures, hiring inch upward in plants

Payrolls and employment associated with programs of the U. S. Atomic Energy Commission in Oak Ridge and Paducah both increased during 1971. The combined payroll for the AEC and its contractors during 1971 was \$168,332,322, an increase of more than \$13,000,000 over the 1970 total of \$155,191,458.

The average annual employment for the AEC and its major operating contractors in Oak Ridge last year was 15,278, an increase of 142 over the 1970 average total of 15,136.

Statistics for 1971 show that an increasing number of employees commute to their jobs in Oak Ridge from surrounding areas. Employees living outside Oak Ridge during 1971 totaled 9,338 (61.1 percent) compared to 5,940 (38.9 percent) who lived and worked in Oak Ridge. Totals for 1970 were 9,072 (59.9 percent) and 6,064 (40.1 percent), respectively.

Commuters had wages totaling \$95,453,196 in 1971, compared to \$85,256,740 the previous year, and Oak Ridgers employed in AEC programs earned \$72,879,126 in 1971 compared to \$69,934,718 in 1970.

Outside of Oak Ridge, residents of Knoxville continued to lead other communities in the number of employees working in AEC programs at Oak Ridge. A total of 3,114 Knoxville residents were employed in Oak Ridge last year, earning \$33,540,322 in wages, representing 20.4 percent of the total Oak Ridge work force and 19.9 percent of the total payroll.

More than 400 employees traveled between 30 and 40 miles one way to work in Oak Ridge last year, another 134 commuters traveled between 40 and 50 miles one way, and there 221 long-distance travelers, commuting more than 50 miles one way each work day.

Employment at the Paducah Gaseous Diffusion Plant increased during 1971 by a factor of more than two percent, from 1,177 at the close of 1970, to 1,205 at the end of 1971. Payroll at the Paducah site also increased from \$10,624,447 to \$11,794,007.

A total of 59.7 percent of Paducahans live in the western Kentucky city, with the balance scattered in Kevil, Mayfield, Murray, West Paducah and La Center. Commuting from Metropolis, Ill., are 30 employees, while a total of 27 commute more than 50 miles a day one way to the Paducah plant.

## 'Prime' moon rock at ORNL briefly this week for radioactive testings

ORNL scientists received the first moon rock released from the Apollo 16 flight and performed tests on it last week.

Jim Eldridge, Analytical Chemistry Division, was present in Houston to receive the rock when the boxes were opened on May 1.

On May 2 the rock, weighing 1.7 pounds, was placed in a gamma ray counter for gamma ray spectroscopy studies. G. Davis O'Kelley, Chemistry Division, is a principal investigator for NASA and directs this research. Joe Northcutt, Analytical Chemistry Division, is also on the investigative team.

The team is looking for short-lived radioactive specimen in the rock produced by cosmic ray bombardment from solar flares. They will also measure concentrations of radioactive uranium, potassium and thorium.

O'Kelley explains that one of the purposes of the experiments is to determine whether the moon has a hot or cold interior.

The rock was returned to Houston on Monday.

## QUESTION BOX

If you have a question on company benefits, policies, etc., just drop it in the mail to the Editor, Nuclear Division News, Building 9704-2, Y-12. You may or may not sign your name. It will not be used in the News.

**Question:** How does one go about getting someone into the TAT program?

**Answer:** Application for the Training and Technology program is made either by: writing Training and Technology, P. O. Box 117, Oak Ridge, Tenn. 37830; or by going personally by the Tennessee Department of Employment Security, French's Plaza, Oak Ridge, where applications can be picked up. The General Aptitude Test Battery (GATB) tests may be taken there also before an interview is arranged. Currently, veterans and disadvantaged persons are being given first consideration.

**Question:** How much bearing does membership in the Masonic Lodge have on eligibility for promotion in Y-12, officially or unofficially?

**Answer:** None. Promotions are based on merit, qualifications, and the availability of higher ranking jobs.

### Dividend declared

Union Carbide Corporation has declared its 220th consecutive dividend. The amount is fifty cents a share on the outstanding capital stock of the corporation, payable June 1.

## Memorial day holiday

Nuclear Division employees will observe one of the new federal week-end holidays this month. Monday, May 29 will mark Memorial Day observance. No employee will be required to be at work unless his presence is necessary for security or continuous operations.



IT'S A MOON ROCK—The first investigative studies on the Apollo 16 moon rocks were performed by a group of ORNL scientists last week. This photo was taken at NASA just before the rock was sealed in a container for its trip to ORNL. The rock, weighing 1.7 pounds, has already been returned to NASA.

## NUCLEAR DIVISION SAFETY SCOREBOARD

Time worked without a lost-time accident through April 13:

ORGDP .....	23 Days	312,000 Man-Hours
ORNL .....	23 Days	488,520 Man-Hours
Paducah .....	43 Days	260,000 Man-Hours
Y-12 .....	198 Days	7,346,000 Man-Hours

**Safety is everyone's concern!**

# Automobile—blessing or bane? How much time do we have left?

Since the automobile is assuming an ever-increasing role in American society, the cost of transportation is becoming a more important factor. Not only does the consumer pay for automobile purchase and maintenance, but when he buys a new automobile, he pays for pollution control devices and safety devices. He pays taxes on gasoline for highway construction. And the dwindling oil supply promises to run fuel prices up within the next few years. All that plus he has to suffer jangled nerves from traffic congestion.

The automobile causes many environmental problems including air pollution, vehicle safety, noise pollution, traffic congestion, urban decay, suburban sprawl, and lack of adequate transportation alternatives such as mass transit systems.

The consumer is often not aware of the rising costs he pays for transportation of goods by inefficient energy methods. What are the energy costs of the automobile and other transportation methods? Where do we go from here? These questions have been under investigation by Eric Hirst in the energy assessment group of the ORNL-NSF Environmental Program. Following are some of his findings.

## Limited Fuel Supply

During the past few years we have been confronted with a series of energy problems, often referred to as an energy crisis. Most Americans are familiar with these problems: brownouts and blackouts, fuel shortages, rising fuel prices, and the environmental impacts of energy production and conversion. Unfortunately, many of us are not aware of the close relationship between the automobile and these energy issues.

Approximately one-half of U.S. energy consumption is supplied by petroleum, with half this petroleum going to the transportation sector. In 1970, American cars consumed 66 billion gallons of gasoline, equal to 30 percent of total U.S. petroleum consumption. This is important for three reasons.

First, the U.S. currently imports almost one-fourth of its petroleum supply. The fraction of oil provided by foreign imports is climbing rapidly and will probably exceed 50 percent within ten years. Most of this oil comes from the Middle East, a region noted for its political instability and lack of amity for the U.S.

Second, developing petroleum supplies involves serious environmental

problems — consider the number of oil spills, tanker accidents, fires at offshore oil wells, and the controversy over the Alaskan oil pipeline.

Third, the world supply of petroleum is quite limited and we shall soon face a serious energy resources problem. Experts estimate that 80 percent of the world oil supply will be exhausted within 50 years. U.S. petroleum resources are sufficient for only another 30-40 years; even the Alaskan oil discoveries cannot add more than 10 years to these estimates.

## Indirect Energy Costs

These figures show that the energy problems caused by gasoline consumption for the automobile are quite serious. But this is only part of the problem. Indirectly the automobile consumes as much energy as it consumes directly in gasoline.

Energy is used, directly and indirectly, to produce gasoline; to manufacture and sell cars; to repair, maintain and insure cars; to manufacture replacement equipment; and to build and maintain highways — as well as to power cars (automobile gasoline consumption).

In order to produce a gallon of gasoline, oil fields must be discovered, wells drilled, oil pumped to the surface and then transported to oil refineries. Petroleum refineries consume energy to transform crude oil into various refined petroleum products such as gasoline, diesel fuel, kerosene, and jet fuel. Summing the energy costs for these steps suggests that about 1.2 units of energy are required, directly and indirectly, to produce 1 unit of gasoline energy. In other words, the energy equivalent of 12 gallons is consumed for every ten gallons pumped into your car's gas tank.

## Converting Raw Materials

Automobiles are made of steel, iron, copper, aluminum, rubber, glass, plastics, and other materials. Each of these materials must be mined, converted from raw ore to a primary product, and then finished at a fabrication plant. These finished products are then shipped to automobile manufacturers where automobiles are assembled. Each of these steps requires energy. Altogether, it takes about 150 million Btu of energy to manufacture one automobile. If all this energy were consumed as gasoline (it isn't) this would equal 1,100 gallons of gasoline per automobile. This is enough gasoline to run a car about 15,000 miles.

Energy is then required to ship cars



THE ENERGY FLOW—In 1970, 53 percent of the U.S. petroleum supply was used for transportation—31 percent of the total was directly pumped into automobiles.

from the factory to dealerships throughout the country. Dealers spend money, and energy, preparing cars for delivery, advertising their wares, lighting and heating their showrooms, and so on. Altogether these various activities require almost as much energy per automobile as does the manufacture of a car.

Finally, we must include the energy used to make replacement tires, spark plugs, batteries, and all the other parts needed for repairs, maintenance, and as accessories. Billions of dollars are spent annually to construct new highways and roads. This requires considerable quantities of energy, both for road construction and for production of the sand, gravel, and cement used to build these roads.

Adding up all these energy requirements gives a total of about 16,000 trillion Btu per year (for 1968). Of this total, only 50 percent is consumed directly as gasoline. The remaining 50 percent is devoted to the indirect functions discussed above. On a per mileage basis, the average automobile in the U.S. consumes 19,000 Btu per mile. This is equivalent to only 7.1 miles per gallon.

Thus, the automobile is (directly and indirectly) responsible for about 25 percent of total U.S. energy consumption. What can we do to lower this figure, conserve energy resources, reduce air pollution, and help solve both our energy and automobile problems?

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The most important thing we can do is promote changes in the modal mix for passenger transportation. Bicycles are 22 times as energy-efficient as cars; walking is 15 times as efficient; buses are almost 4 times as efficient; and railroads are 2.5 times as efficient as cars. Only airplanes are less energy-efficient than cars.

If we were able to suddenly shift all urban passenger traffic to buses and half the inter-city automobile traffic to buses and railroads we would effect enormous energy savings. Specifically, we could have reduced gasoline energy consumption in 1970 from almost 9,000 trillion Btu for cars, to 4,500 trillion Btu, a 50 percent reduction.

## The Benefits

In addition to the beneficial aspects of energy conservation, such changes in transportation would have several other positive effects. Traffic congestion in cities would be reduced, and land formerly devoted to parking lots and streets could now be used as parks and for low-income housing. The noise of engines, squealing tires, and honking horns would be decreased and we might, once again, restore some tranquility to our cities.

On a national scale, our dependence on foreign petroleum would be greatly diminished. These changes would also ease the pressures on domestic petroleum reserves, allowing us more time to develop ecologically rational ways to use these resources.

Unfortunately, it will probably take a few decades to shift from automobiles to more energy-efficient transport modes such as mass transit. One encouraging note, however: in 1971 over 8 million bicycles were sold, double the number sold ten years earlier. In the meantime, there are ways to increase the energy-efficiency of cars. The typical car has only two passengers; if this increased to four, by the use, for example, of car pools, energy consumption for automobiles would be halved.

We could also use the smaller cars, with lower horsepower engines, driven at lower speeds to improve fuel economy. However, automobile fuel economy will decline 20-40 percent over the next several years because of federal automotive air quality requirements.

The changes in passenger transportation suggested here require major social, political, and institutional changes. But this should not deter us from working for such changes. After all, consider the alternatives!



ALL THESE AND MORE—Acres and acres of petroleum storage tanks remind us that, at present consumption rates, 80 percent of the U.S. supply of petroleum will be depleted in 30-40 years.

## NUCLEAR DIVISION NEWS

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## Richard Setlow is named director of UT-OR Graduate School of Biomedical Sciences



Richard B. Setlow

Richard B. Setlow has been named director of The University of Tennessee-Oak Ridge Graduate School of Biomedical Sciences. The announcement was made by UT on April 20. His appointment is effective immediately.

Setlow, a biochemist, joined ORNL's Biology Division in 1961 after teaching at Yale University. He has been a part-time professor at the Biomedical School since 1967. He has directed the biophysics and cell physiology group since 1969 and will continue in this position.

Roy Curtiss has been serving as interim director since the school's director, R. Clinton Fuller, left last summer. Curtiss will be leaving soon to join the University of Alabama Hospital in Birmingham.

Setlow received the Ph.D. degree from Yale. He has served as chairman of the National Academy of Science-National Research Council Committee on Photobiology, president of the Biophysical Society, vice president of the Comite International de Photobiologie and a member of the Biology Advisory Committees of both Argonne National Laboratory and Brookhaven National Laboratory.

## 30 pre-coop students from five universities

Thirty students who will enroll next fall in five predominantly black universities, have been selected for a "pre-cooperative" education program conducted by the Nuclear Division.

This is the third year Union Carbide has sponsored the program, which is designed to encourage black students to pursue college studies in science and engineering. The program, supported by the U. S. Atomic Energy Commission, is specifically aimed at students who might otherwise not attend college.

Educational institutions participating in the program are: Howard University, Washington, D. C.; North Carolina A & T State University, Greensboro; Southern University, Baton Rouge, La.; Tennessee State University, Nashville; and Tuskegee Institute, Tuskegee, Ala.

As part of the program, the Nuclear Division places several of the high school graduates in summer jobs as "pre-cooperative" students. Placement is contingent on their acceptance into an engineering or science curriculum at one of the participating institutions. In addition, the students must meet normal requirements for summer employment at Nuclear Division facilities.

Students participating in the pre-cooperative program this year are:

**Howard University** — Edward L. Bradley, Alan L. Heard, Raymond W. McCrary, Maurice Richardson, Michael G. Trulear, and Gregory C. Hutchings.

**North Carolina A & T University** — Frank E. Batts, Karen S. Caple, Lloyd C. Strachan, Anthony B. Alexander, Elmer Moore, and Cicero Upchurch.

**Southern University** — Stafford Brown Jr., Michael A. Dobard, Lemar McNair Jr., Gwendolyn E. Muse, Ronald J. Richard, and Leroy Powell.

**Tennessee State University** — Nettie M. Hawkins, Eugene McKissack, Dennis D. Patton, Nelson I. Stephens, Leonard E. Valentine, and Regina D. Wagner.

**Tuskegee Institute** — Gregory D. Dixon, Adolphus Jones Jr., William J. Love, Randle E. Fleming, Albert Hughes Jr., and Benjamin Thomas.

## Air, moisture-tight suit is developed for toxic environs by Y-12 engineer



Frank Fuis, Jr.

An improved, supplied-air suit which protects a worker from uncomfortable or toxic environments and protects controlled atmospheric areas from human emissions has been developed at the Oak Ridge Y-12 Plant.

The air and moisture-tight suit, with unique features developed by Union Carbide engineer Frank Fuis Jr., is used at the Plant in certain manufacturing operations where body moisture would adversely affect a controlled environment.

The suit consists of two sections of a nylon-based material joined at the waist and a rotatable, bubble-type, plastic helmet. The suit has a self-contained air regulator, sensitive to a pressure less than one-quarter inch water gauge, and is equipped with full-flow, self-sealing, detachable air and vacuum connections.

Fresh air, pumped through a hose, is supplied to the helmet and to the other body extremities. Air ducts in the neck band direct the incoming air toward the front center of the helmet, ensuring an abundance of fresh, conditioned air for breathing while preventing the helmet from fogging. Safety features include emergency relief valves for both air and vacuum.

Potential uses in industry include the protection of personnel in areas of uncomfortable temperatures, in atmospheres of nitrogen, helium, argon, carbon dioxide or toxic fumes. Industries presently using glove boxes for environmental control may wish to consider the use of this supplied-air suit.

## ORNL info colloquium hears Perey, Weinberg

ORNL's bimonthly Information Colloquium will meet for the second time May 22 at 7:30 p.m. at the new Jefferson Junior High School auditorium. Attendance will be restricted to staff members. Please wear your badge.

The meeting will begin with a coffee and coke social hour. Laboratory Director Alvin M. Weinberg plans to be the speaker for management. Presenting the technical talk will be Francis G. Perey of Neutron Physics Division. His talk is in the nature of a scientific detective story describing the search for traces of the early history of the universe in the form of high energy alpha-particle tracks in minerals. This search has taken him to a number of European laboratories and encounters with names famous in the history of twentieth-century physics. A time for an exchange of ideas between staff and management has also been scheduled.



IMPROVED AIR SUIT — An improved air suit for special environments has been developed at the Y-12 Plant by Frank Fuis Jr. Shown modeling the unique suit is Roy R. Suttles, also of Y-12.

## Roy Pruett new head of state credit unions



Roy F. Pruett, ORNL Budget and Programming Division, was elected president of the Tennessee Credit Union League at the League's annual meeting recently in Nashville.

The Tennessee Credit Union League encompasses 590 credit unions across the state. (ORNL, Y-12 and ORGDP credit unions are members.) The League represents 465,000 CU members with total assets of \$424 million.

Pruett joined ORNL in 1960 after being business manager of the Finance Division with the city of Oak Ridge for several years. Presently he is administrative assistant to Physics Division and budget administrator for the ORNL-NSF Environmental Assessment Program.

He is a fellow of the Society for the Advancement of Management International and currently vice president of SAM International. During 1971 he directed the personnel, planning and promotion and public relations committees of the TCUL.



### Y-12

RIDE from East Knoxville, Woodbine area, to North Portal, straight day. Lurbirda Woods, plant phone 3-7434, home phone Knoxville 546-5256.

RIDE from Middlebrook Acres, Knoxville, to Central Portal, straight day. J. D. May, plant phone 3-5938, home phone Knoxville 584-0505.

WILL JOIN CAR POOL from vicinity of St. Mary's, Knoxville, to West Portal, J Shift. T. A. Seddon, plant phone 3-5165, home phone Knoxville 523-0516.

RIDE, or WILL JOIN CAR POOL from Clinton to West Portal, straight day. J. C. Rogers, plant phone 3-5445, home phone Clinton 457-2727.

### ORGDP

RIDE from 616 Cedar Lane, Knoxville to Portal Two, straight day (7:45-4:15). Chris Fain, plant phone 3-3313, home phone Knoxville 688-5856.

RIDE from West Mall section, Kingston Pike, Knoxville, to Portal Two, straight day. John Cooke, plant phone 3-3841, home phone Knoxville 584-5528.

RIDERS, or will join car pool from Farragut Community, Concord, to Portal Four, straight day. Clyde Hill, plant phone 3-9636, home phone Concord 966-5905.

### ORNL

RIDE or join car pool from Halls to any portal, 8 a.m. E. W. Pritchard, 3-6523 or 922-8207.

CAR POOL MEMBERS from vicinity of Vermont, New York, Utah or lower Pennsylvania Avenue to East Portal, either shift. Paul Taylor, 3-6664 or 483-5222.

## 'Man and Atom' book

The AEC Employees Association is offering Glenn Seaborg's "Man and Atom" at half price to anyone wishing to add it to his personal library. The handsome book with pictures, diagrams and many local references was originally priced at \$10. In highly readable style it describes how nuclear energy can deal with crises facing our civilization—how new worlds can be built through nuclear technology. It may be obtained for \$5. Contact Ruth Carey, Room 1024, extension 3-4471, Federal Office Building.

# Many Nuclear Division departments went 100 percent for U.S. savings bonds

72 656



Systems and Procedures—General Staff

72 783



Food Services—ORGDP



Cashier and Travel—Y-12



Mail Department—ORNL

72 782



Laboratory Administration—ORGDP



Methods Development and Evaluation—ORNL



**PROUD SECRETARY**—Betty Lester, secretary to the superintendent at the Paducah Gaseous Diffusion Plant, saw her boss named "Boss of the Year" by the Paducah-Kentucky Lake National Secretaries Association. She presents Robert A. Winkel his certificate, while he holds the statuette presented by the secretaries.



**BOSS OF THE YEAR**—Robert G. Jordan, superintendent of the Oak Ridge Gaseous Diffusion Plant, right, was named 1972 "Boss of the Year" by the Oak Ridge Chapter of the National Secretaries Association April 28 in Oak Ridge. He accepts his trophy from John Shacter, director of AECOP, last year's Boss of the Year.

6,991 participate

## Paducah, General Staff earn honor flags as bond drive nears completion

Two more Treasury Department "Minuteman" flags come to the Nuclear Division as a result of the U. S. Bond drive! Adding more than 1,900 new participants to the payroll savings method of saving, chairman in all four divisions report success.

The two gaseous diffusion plants — in Paducah and Oak Ridge — waged friendly competition down the line, and the Paducah Plant edged out the Oak Ridge installation in the last seconds of the drive by less than one-tenth of one percent. General Staff and the Paducah Gaseous Diffusion Plant earn blue flags from the Treasury Department (the Oak Ridge Gaseous Diffusion Plant will receive a star for the one they earned last year), as nearly 50 percent of all Nuclear Division employees now purchase Bonds through regular savings, a total of 6,991 employees.

General Staff led the field with 77.2 percent participation; Paducah next with 66.5; ORGDP with 66.4; Y-12, 40.8; and ORNL, 37.4.

Kenneth W. Sommerfeld, superintendent of Operations at ORGDP, who headed up this year's bond drive for the Oak Ridge area, gave high praise to the chairmen in the four plants, and the general staff. Sommerfeld's bond committee included: James C. Barton, ORGDP; Ward E. Foster, ORNL; and Thomas R. Webber, Oak Ridge Y-12

## 'Kind of celebration' features local poets

The Studio Theater of Oak Ridge will stage a multi-media presentation of the works of three local poets. The drama, "A Kind of Celebration," will include recitation, film, dance and pantomime. The poems of Woody Gove, Joyce Haber and Joan Silva will be expressed in this experimental theater production Friday, May 12, and Friday and Saturday, May 19, 20 at the Playhouse, Jackson Square. Tickets are available at the box office during the present play "Little Murders." Admission is free to season ticket holders. The price is \$1.25 to non-members and student rates will be 75c per performance.

Plant. John L. Clark coordinated efforts at Paducah. Chairman W. T. Carter headed efforts for the General Staff.

Y-12 chairman Tommy Webber reports six departments that are participating 100 percent. They are Plant Records and Cashier and Travel in Materials and Services Division; Alpha Five North Shop in Fabrication; Engineering Staff, Instrument Engineering and Construction Engineering, all in the Engineering Division.

ORNL chairman Ward Foster reports the Mail Room; Engineering Administrative Services of the Reactor Division; Methods, Development and Evaluation group, and the General Hot Analyses Laboratory in Analytical Chemistry, as participating 100 percent in payroll deductions.

The General Staff reports Industrial Relations, Systems and Procedures in the General Accounting Division, and two segments of the Purchasing Division, as 100 percent enrolled on payroll deductions.

### Contented living

There are nine requisites for contented living:

- Health** enough to make work a pleasure;
- Wealth** enough to support your needs;
- Strength** enough to battle with difficulties and forsake them;
- Grace** enough to acknowledge your faults and overcome them;
- Patience** enough to toil until some good is accomplished;
- Charity** enough to see some good in your neighbor;
- Love** enough to move you to be useful and helpful to others;
- Faith** enough to give reality to divine things;
- Hope** enough to remove all anxious fears concerning the future.

—Goethe

### Next Issue

The next issue will be dated June 1. The deadline is May 23.

## Paducah, ORGDP superintendents chosen secretaries' 'bosses-of-year'

Robert G. Jordan

Robert A. Winkel

Robert G. Jordan, superintendent of the Oak Ridge Gaseous Diffusion Plant, was named 1972 "Boss of the Year" by the Oak Ridge Chapter of the National Secretaries Association. Their annual Bosses' Night banquet was held April 28 at the Oak Ridge Marina Restaurant.

Jordan, who has been, respectively, superintendent of the Paducah Plant, Y-12, and ORGDP, is past-chairman of the Oak Ridge Housing Authority and a member of the Oak Ridge Rotary Club.

His secretary, Anne Boring, vice president of the Oak Ridge Chapter of NSA, nominated her boss for the award. The trophy and certificate were presented by John Shacter, director of Atomic Energy Commission Combined Operations Planning (AECOP), last year's Boss of the Year.

The ORGDP superintendent came with Union Carbide in 1943. He is a native of Carroll, Ohio, and a graduate of Ohio State University.

Jordan, in being so honored, was cited for his professional and civic activities, as well as his strong support of the programs sponsored by NSA.

Robert A. Winkel, Paducah Plant superintendent, was named "Boss of the Year" at the Paducah-Kentucky Lake Chapter, National Secretaries Association, banquet, April 26.

The award is made on the basis of the boss's accomplishments and general standing in his profession and community; his support of NSA activities; his secretary's support of NSA and her dedication to the secretarial profession; and a statement by the secretary on why she feels her boss should be so honored.

Winkel was nominated by his secretary, Betty Lester, and 16 other secretaries in the Plant who are members of the Paducah-Kentucky Lake Chapter. In their nominations, the plant secretaries stated, "Our boss has given most generously of his talents, time and support of community, educational, and state projects without thought of personal gain; yet, the fact that he progressed from a maintenance foreman to plant superintendent proves he has given a full measure of effort toward his responsibilities to his company and to the employees he supervises."

Roger F. Hibbs, president of the Nuclear Division, was the banquet speaker. He spoke on "The Role of Women in Industry." The Honorable Dolly McNutt, mayor of Paducah, presented Hibbs a "Duke of Paducah" award during the ceremonies.

### No spares

In 1948, the National Society for the Prevention of Blindness assumed sponsorship of the Wise Owl Club of America. This internationally recognized eye safety incentive program helps industry and education to reduce needless and costly eye accidents and loss of sight by encouraging the widespread use of proper eye-protective equipment. Membership in the organization is awarded to employees and students whose eyesight has been saved by the wearing of eye protection at the time of a potentially blinding accident. As of March 1, 1972, membership in the Wise Owl Club stood at 49,700 individuals from 6,500 chapters.

## Cost reduction efforts featured in magazine

The March issue of Maintenance Engineering, a 22-year-old publication whose title describes its interests, includes a description of the cost reduction efforts in Maintenance Engineering at the Oak Ridge Gaseous Diffusion Plant.

Written by Jim Pickel, engineer, the two-page article entails communications, motivation, and end results of the program which netted a savings of \$419,000 in 1971. The article's entitled "Motivated Craftsmen Contribute to Cost Reduction."

"We believe we have found a successful cost reduction program that costs little," Pickel concludes, "creates a competitive atmosphere, shows interest from all levels, gives individual recognition and, above all, it makes cost reduction a routine task rather than a crash project from time to time."



# SPORTS NOTES



### Y-12-ORGDP PICNIC

Saturday, June 3 — at the Clark Center Recreation Park — from 1 p.m. until 7 p.m., this year's ORGDP and Y-12 Engineering Division picnic will happen. The festivities are being planned to include something for the entire family. Actually, the agenda for the afternoon has evolved into such a wide variety of events that the picnic has been dubbed, "The Square Root Follies."

The afternoon will begin with a series of softball, volleyball, and horseshoe contests, while the children (anyone under 60) participate in a peanut hunt, sack race, balloon race, and to top it off, an egg toss! For those sports fans who enjoy watching, a five-mile relay race between two unannounced departments will occur. Beginning at 3 p.m. a variety show featuring in-house talent (?) will be enjoyed (??). The finale will be a Friar's Roast followed by a picnic dinner. Tickets for the dinner are \$1.50 for adults and \$1 for children through 12. See you at the picnic! (Incidentally, the photos are from last year's picnic.)

### Y-12 GOLF

Three Y-12ers fired under-par scores to open the golf season at Wallace Hills recently. Bob Carmack scored an amazing 66 to take first place, while Jim Pugh tallied a 67. Carl Dorr, veteran greensman, scored a 71. Danny Culbertson's 80 took the second division; Mike Thompson was handicap winner with 84. In division three it was Dave Kirby with a scratch score of 76. Bill Gross, Jim Shoemaker and Jim Hummel shared all handicap honors . . . each netting a total of nine points.

### ALL CARBIDE

Skeet firings for April saw Jack Case, Y-12, win with a 48.645 score. He was followed by two other Y-12ers, D. Rose and Bert Searles, with 47.920 and 47.774 respectively.

The Hi Powered Rifle League fired its first volley in April . . . giving George Reimann, ORNL, a 479/500 score . . . followed closely by Jack Spurling, Y-12, 470; and Jack Huff, also of Y-12, with a 476.

Jerry Goldstein leads the Table Tennis Y crowd, by a mere two games over John Butler. In the X League it's Loyd Wvatt one game over Herb Mook.

Golfers are reminded of the tournament set May 20. The application appears below. Only Gatlinburg course will have carts arranged by Recreation; the others will let you reserve carts on your own after you receive a tee-off time. In Gatlinburg, the cart holders will go off the tee first, naturally.

The Recreation Department announces the formation of a family league for summer bowling. Employees and spouses will participate in the alley action, probably on Thursday evenings. Call Recreation, extension 3-6723, to get in on the action, or more details.

### ORGDP GOLF

Clea Neal under-parred at Southwest Point to win ORGDP honors, amid the rain recently, as the golf season opened. His 70 score was low scratch there, while Bill Moon was handicap winner on the lakeside course.

In division two it was Ben Gaylor with a scratch score of 85 . . . and in the third division it was Dave Roberts with 87.

## Uranium producer

New Mexico and Wyoming are the largest states mining uranium in all of the 50 United States. Together they produced over 26 million pounds of uranium last year.



RECEIVES WILLIAMSON AWARD — Robert J. Betts, superintendent of Industrial Relations at ORGDP, left, is presented the James House Williamson Award by Robert G. Jordan, ORGDP plant superintendent. The presentation was made at the annual meeting of the Tennessee Industrial Personnel Conference.

## James House Williamson honor goes to ORGDP's industrial relations head

Robert J. Betts, superintendent of Industrial Relations at the Oak Ridge Gaseous Diffusion Plant, has been awarded the James House Williamson Award. The honor is presented annually by the Tennessee Industrial Personnel Conference to the individual who has made outstanding contributions in the field of industrial personnel management.

In making the presentation for the TIPC, Robert G. Jordan, Plant Superintendent at ORGDP, stated, "Betts' interest in industrial personnel and their development extends beyond the bounds of our operations. He was instrumental in establishing an information center for use of the members of the Tennessee Valley Personnel Association and its affiliated organizations to make available and share the knowledge of people experienced in personnel administration."

### 'Opportunity Line'

James House Williamson, a native of Gallatin, coordinated the educational activities of the War Manpower Commission in the state of Tennessee during World War II. After the war, he

helped develop UT Extension centers in Knoxville, Nashville, Memphis, Tullahoma, Oak Ridge, and Martin. He was permanent secretary for TIPC for more than seven years. The award is made in his memory.

Betts has been very active in industrial personnel development and utilization in this area. He initiated the television program "Opportunity Line," a continuing effort to bring employers and employees together utilizing the resources of television and the Tennessee Department of Employment Security. By the end of 1971, this program had made 3,500 employee contacts, 630 job referrals, and over 200 placements. As a result of his efforts on "Opportunity Line," Betts is now chairman of an advisory committee to the manager of the Knoxville office of the Tennessee Department of Employment Security.

### Came to ORNL

Betts came with Union Carbide at the Oak Ridge National Laboratory in 1955, as a member of the employee relations department. In 1961 he was named superintendent of the employee relations department, and in 1967, was made superintendent of Industrial Relations at ORGDP.

A native of East Tennessee, he holds degrees from UT in business and law. He and his wife Barbara live at 6832 Northshore Drive, Knoxville.

The late Thomas E. Lane, general superintendent of Industrial Relations, was the last recipient of the award from this area.

## Robert F. Jones dies following heart attack

Robert Fred Jones, 9766 Machine Shop, Y-12 Plant, died April 18, from an apparent heart attack.

A native of Blairsville, Ga., Mr. Jones came here January 26, 1954, after working with Bell Aircraft, Marietta, Ga., and machine shops in Gastonia, N.C.

Survivors include his wife, Mrs. Dorothy Jones, at the family home, 195 Louisiana Ave., Oak Ridge; a son, Robert F. Jones Jr., 138 Placer Lane, Oak Ridge, and two grandchildren; three sisters, and two brothers.

Funeral services were held at Weatherford's Mortuary, Oak Ridge, with burial in Anderson Memorial Gardens.



Mr. Jones

## Certification changing

The Institute for the Certification of Engineering Technicians remind technicians that 1972 is the final year for certification through occupational experience. Many technicians have raised the questions about changes in how the ICET will certify them in the future.

"Definitely, so," says J. E. White, extension 3-5866, "1972 is the last year you will be able to gain certification on occupational experience, where certain educational attainments are waived."

Contact White or Gene Hicks, at extension 3-1581, for further details on certifying as an engineering technician.

## Tee-Off Time Application for May 20, 1972

(Check Appropriate Plant)

- ORGDP—WALLACE HILLS GOLF COURSE
- ORNL—WHITTLE SPRINGS GOLF COURSE
- Y-12—GATLINBURG GOLF CLUB

Check 2 Carts

LEADER \_\_\_\_\_

Phone \_\_\_\_\_ Bldg. \_\_\_\_\_

2nd Choice \_\_\_\_\_ Time Preferred \_\_\_\_\_

### COMPLETE AND RETURN TO YOUR RECREATION OFFICE

Entries must be received prior to drawing on May 17, 2 P.M.

ORGDP—Building K1001—C-Wing—Room 136  
 Y-12—Building 9711-5  
 ORNL—Building 4500—Room K-113

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Other than at Gatlinburg, golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times.

## Sickle cell anemia

By T. A. Lincoln, M.D.

Through the efforts of Bill Cosby and other leaders, the black population in this country is becoming increasingly aware of sickle cell anemia. This disease causes progressive disability and premature death in black children and young adults.

Their parents rightfully complain, "Why haven't I heard about this before? How can I be tested? Can the disease be treated?"

In the United States, about one in 500 black infants will eventually develop



this genetic disease. It is more common than cystic fibrosis (one in 2940 births), childhood diabetes (one in 2500) or phenylketonuria, PKU (one in 10,000), and other genetic diseases which affect primarily white children.

The severe sickle cell anemia is the result of an abnormal hemoglobin which is inherited from both the father and mother. Sickle cell hemoglobin causes the red cells to change from their "lifesaver" shape to a thin pointed sickle-like shape. This change occurs particularly in tiny blood vessels when the cells have a diminished supply of oxygen.

The characteristic sickle shape of the red blood cells can be seen when a drop of blood is sealed under a cover slip on a microscope slide. The sickle cells develop slowly at first but reach their peak in two to six hours.

### Severe Symptoms

The anemia caused by the destruction of the red blood cells is often severe. Patients usually have extremely pale lips and often have mild jaundice (yellow color seen especially in the whites of the eyes due to the overloading of the liver with damaged red cells). They often have weakness, aching joints, and episodes of severe abdominal pain. Enlargement of the heart and liver are common. Chronic leg ulcers, bone deformities, and neurological symptoms such as convulsions, palsies, and coma are tragically frequent.

Many patients will have "crises" when the anemia is severe, followed by periods of improvement. The sickling of the red blood cells occurs when the percentage of reduced sickle hemoglobin (HgbS) reaches a critical level. Much of the pathology is caused by plugging of capillaries with sickled cells.

### 'Genetic' Prevention

Unfortunately, there is no satisfactory treatment for this disease. Various methods are now available in medical centers to get children through some of their crises, but only about half will survive to adulthood and then most will be chronically ill.

The only solution available at the present time is prevention through genetic counseling. A black man or woman who carries the sickle cell trait will have essentially no symptoms, but if two of them marry, they run an unacceptably high risk of having a child with the severe disease.

Since only one in 12 black men and women carry the sickle cell trait, the chance of a pair of parents both having the trait is only one in 144. It has been estimated that less than one in a hundred families are a risk of having chil-

dren who develop the disease. Even though the risk is small, it could be avoided completely.

If a young black man knows he carries the trait, he can be careful to select a wife who does not have the trait. Obviously, the opposite would be equally important. When only one parent has the trait none of their children will develop the disease, although about half will carry it. If both parents have the trait, approximately 25 percent of their children will develop the disease and 50 percent will carry the trait. These percentages are only approximations since the genetics is complicated by at least one other abnormal hemoglobin which can be inherited.

### Large-Scale Testing

Ideally, a screening program to identify children who either have the disease or carry the trait would help them select a mate intelligently.

Sickle cell disease and trait can be identified by a test performed by all hospital laboratories. A screening test has been developed for large-scale testing, but those who screen positive must have more detailed tests to be certain of the diagnosis.

If means were available to identify people at risk for genetic diseases, many tragedies could be avoided. In most of these diseases, meticulous and complete family histories must be recorded sometimes for several generations before it can be determined who is likely to be susceptible. All black people need is help in obtaining the screening test and then more complete follow-up testing on those few who are positive. If a couple finds that they both have the trait, they should not have children.

School programs for screening all black children before they reach puberty could lead to a gradual elimination of an unnecessary and tragic disease. Obviously genetic counseling of those who have a positive test must be effective or any testing program would be a complete waste of time.

## Beall and Rosenthal visited Pakistani labs

ORNL Reactor Division Director Sam Beall and Murray Rosenthal, director of the Molten Salt Program, have been visiting the laboratories of the Pakistani Atomic Energy Commission. They are participating in the "sister laboratory" agreement between the USAEC, the State Department and the Pakistani AEC.

Under the agreement they visited Pakistan during late April and early May to review the engineering and energy-related programs of the PAEC and its laboratories and to assess their capabilities in these areas in both technical manpower and facilities. Also part of their outreach was to propose ways in which the sister laboratory arrangement can be used to increase the capabilities of the PAEC laboratories and aid them in achieving their objectives.

From Pakistan they will travel to the Bhabha Atomic Research Center in Bombay, India, where they will review the molten salt reactor related work presently underway. They will visit laboratories, inspect plutonium and beryllium handling facilities, irradiation facilities, hot cells, etc., which will be used in the Indian MSR work.

## Elizabeth Huntsman and John Purnell latest promotions in engineering and laboratory

Two recent promotions have been made at Oak Ridge Gaseous Diffusion Plant, as John H. O. Purnell has been appointed a training coordinator in Maintenance Engineering; and Elizabeth A. Huntsman has been named a technical reports analyst in Technical Information, Laboratory Division.

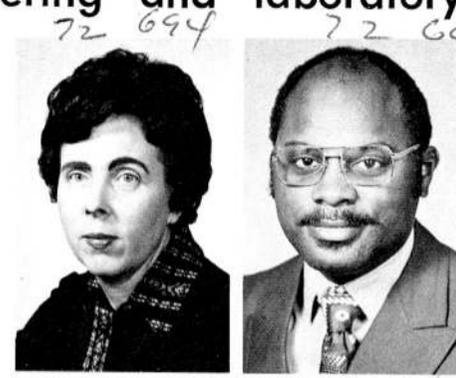
Miss Huntsman, a native of Kingsport, was graduated from East Tennessee State University, with a degree in chemistry. She has been at ORGDP 15 years as a laboratory analyst.

She lives at 203 East Vanderbilt Drive, Oak Ridge, and enjoys travel in her spare time. She also "dabbles" in ceramics as a hobby.

John H. O. Purnell transferred from Y-12 earlier this year, hiring in there June 6, 1966. He is a native of Newark, Md., and was educated at Morristown College and The University of Tennessee.

Mrs. Purnell is the former Shelia Long, and the couple has one son, John Eric. They live at 108 Prairie Lane, Oak Ridge.

Purnell enjoys many activities in Oak Ridge, such as the Atomic City Sportsman Club, Community Relations Council, and is chairman of the TAT Advisory Council. He is a member of the Iota Lambda Sigma honorary fraternity. In his spare time he enjoys hunting and fishing.



Miss Huntsman

John Purnell

## Variety of processes described in bulletin

A variety of items dealing with research, innovative ideas and new techniques are included in the latest Industrial Cooperation Bulletins mailed recently to industries throughout the nation. The bulletins are issued as part of the industrial cooperation program of the Nuclear Division.

The Corporation considers one of its responsibilities the transfer of unclassified technical information and technology derived from work performed at its Nuclear Division facilities.

Each bulletin describes a specific item, reports on the stage of development, the potential industrial application and patent status, in outline form. In addition, each bulletin gives the name of the person from whom additional information can be obtained.

The latest group of Industrial Cooperation Bulletins covers such items as:

- \* A portable electropolishing apparatus that enables specific areas of metal parts to be processed without affecting other areas of the part.
- \* A method for recording hemagglutination reaction for blood typing.
- \* A process for separating and purifying gaseous mixtures from nuclear reactor stack gases.
- \* An electrolytic process for cleaning high-carbon steels.
- \* A method for electronically reading the position of a float indicator in a calibrated air column and presenting the results on direct digital display and a punched card.
- \* A lightweight, supplied air suit that incorporates several features not presently designed into equipment of this type.
- \* A rotary template holder which accommodates up to four different templates to increase the capability of a duplicator lathe when multiple machining operations are required on a single workpiece.

The Industrial Cooperation Bulletins are issued on a quarterly basis.

## RFB requests summer readers and monitors

Summer students, or regular employees in the Oak Ridge area, might like to provide a needed service. Recording for the Blind needs readers and monitors for the summer months. You can set your own schedule either at night or during day-time hours. Just call Oak Ridge 482-3496. They need your help.

## SEA-Chemists sponsor symposium in Ridge

Scientists and Engineers for Appalachia and the Tennessee Institute for Chemists will sponsor a symposium May 12 at the Alexander Motor Inn in Oak Ridge. The symposium, Trade and Technology in Perspective, will be exploratory in nature of many critical issues which face this nation or any other such as raw material control, population control and labor market control.

The afternoon session features a panel discussion which will consider these situations: an analysis of the Knoxville labor market; the potential for the utilization of scientific expertise in attracting research technology-oriented industry; a look at Tennessee's non-renewable resources; the use of physical resources in relation to socially desired ends; the interrelationship of capital, raw materials, labor and managerial know-how; and the potential for formal training in technological skills within educational institutions. Panel members are John N. Mousourakis, manager of Latin American and Mediterranean Affairs for the International Banking Department of Commerce Union Bank, Nashville; Ted F. Connolly, associate director of Oak Ridge Executive Seminar Center; B. W. Hensley, president of Atomic Trades and Labor Council in Oak Ridge; Don Holifield, director for economic development with the Knoxville Chamber of Commerce; S. W. Maher, chief geologist with the Knoxville Office of the Tennessee Department of Conservation, Geology Division; and Arthur H. Nielsen, dean of The University of Tennessee College of Liberal Arts.

David S. Williamson, director of the Atlanta Field Office of the U.S. Department of Commerce will deliver the banquet address. His topic is "Trade and Technology."

The public is invited to attend the symposium. Persons wishing to attend should contact Fred Haywood, 3-1592, or Lester Hulett, 3-6583.

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## CALENDAR of EVENTS

### TECHNICAL

#### May 12

Cancer Research Seminar: (Title to be announced) Anthony J. Girardi, Wistar Institute. Large Conference Room, Building 9207, 12:15 p.m.

#### May 13

Ninth Annual Midsouth Welding Symposium. Oak Ridge Country Club, 9 a.m.

#### May 15

Biology Division Seminar: (Title to be announced) Jerome Freed, Institute for Cancer Research. Large Conference Room, Building 9207, 3:30 p.m.

Chemical Technology Division Seminar: "Head-End Processing of LMFBR Fuel: Disassembly and Shearing," G. A. West; "Voloxidation," S. D. Clinton. East Auditorium, Building 4500N, 3 p.m.

#### May 16

Analytical Chemistry Division Seminar: "Photon Activation: ORELA's Analytical Twist," Enzo Ricci. East Auditorium, Building 4500N, 3 p.m.

Molten-Salt Reactor Program Information Meeting: Central Auditorium, Building 4500N, 9 a.m.

#### May 17

Gas-Cooled Reactor—Thorium Utilization Programs Information Meeting: Central Auditorium, Building 4500N, 9 a.m.

## Patents granted

To **R. Philip Hammond** and **Roscoe Van Winkle**, ORNL, for a "Critical Velocity, Uninterruptedly Flowing Brine in Multistage Distillation System."

To **William R. Miller** and **Carl M. Smith**, ORNL, for a "Self-Adaptive Welding Torch Controller."

To **Ed D. Hudson**, for a "Magnetically Self-Shaping Septum for Beam Deflection."

To **William A. Bell Jr.**, **Ray L. Johnson** and **Three-Stage Isotope Separation.**

Metals and Ceramics Division Seminar: "Application of Scanning Microscopy to Materials Problems," Harry Leamy, Bell Telephone Research Laboratories. East Auditorium, Building 4500N, 2:30 p.m.

#### May 25

Solid State Division Seminar: "Positron Annihilation as a Tool in Metal Physics," Stephan Berko, Brandeis University. Conference Room, Building 3025, 10 a.m.

#### May 31

Metals and Ceramics Division Seminar: "Materials Research at Bell Telephone Research Laboratories," Jack H. Scaff, Bell Telephone Research Laboratories. East Auditorium, Building 4500N, 2:30 p.m.

#### May 31 - June 2

Physics Division Information Meeting: Oak Ridge National Laboratory.

## Shrine paper sale set Sundays, May 14, 21

Anderson County Shriners will conduct their annual Shrine paper sale Sundays, May 14 and 21. This is the annual fund-raising project to support the Crippled Childrens' Hospital at Lexington, Ky., and Greenville, S. C., as well as the Shrine Burn Institute, Cincinnati, Ohio.

Nuclear Division employees participating in the activities will be Emory E. Burns, president, Y-12; Wray Hawkins, vice-president, also from Y-12; George Holt, assistant reban of the Kerbel Temple and area team captain, ORNL; Billy Martin, Clinton area team captain, ORNL; Ferd Stroupe, team captain, Y-12; Lewis Alley, shopping center sales department, ORGDP; and several Oak Ridge business workers.

The Kerbel Temple is the biggest fund raising temple in the United States. Its contributions exceed even those where big Shrine bowl games are played!



**PAINTINGS EXHIBITED**—Fred Heddleson, ORNL engineer, has a one-man show all during May at the Oak Ridge Public Library. There are 21 paintings and sketches in the show, which include charcoal, watercolors and acrylics. Heddleson, who lives in Kingston, has only been painting four years. "Wish I'd started long before that," he muses.

## COMPANY SERVICE —20-25-30—

### ORNL 25 YEARS

Robert L. Laughlin, Edward R. Johns, William R. Gall, Avert C. Partridge Jr., Elmore A. Wallace, Bruce H. Mynatt, Willis H. Campbell, Arnold L. Harrod, Robert L. Bailey, William E. Thompson Jr., Sam H. Beasley, Cullen P. McWright, Jesse H. Erwin, Frances Pleasonton, John A. Burkhalter, Herbert M. Buffington, Elmer L. Gilbert.

### 20 YEARS

Carl L. Fox, Frank V. Hensley, George T. Chapman, Ted M. Newman, Willard Martin, Shelton D. Cline, Roy G. Cardwell Jr., Glynn E. Angel, Richard P. Cumby, Robert D. Parten, John M. Miller, Robert C. Clemens, John W. Fields Jr., J. Paul Rudd, Glenn A. Bowden.

### Y-12 PLANT 25 YEARS

Wilmer A. McNair, Robert S. Morris, Richard Butler, Glen I. Davis, E. Allen Donahue, Graham Boggs, Gus Craige and Oscar Smith.

Howard R. Okla celebrated his 25th anniversary with Union Carbide on May 3.

### 20 YEARS

Charles L. McCarty, James T. Blackmon Jr., Thomas R. Lester, Clifford A. Moore, Archie Q. Gervin, Otis M. Vermillion, Aubrey R. Smith, Albert A. Armour, Joe A. Wallace, O. Duane Sanders Jr., Bonnie T. Shumpert, Ray H. Snow, Thomas C. Little and Dewey Stevens.

### ORGDP 25 YEARS

William O. Gentry, Kermit E. Short, Jewel C. Sweat, Mildred E. Freytag, Irene S. Householder and Granville P. Bryant.

### 20 YEARS

James V. Green, Kenneth L. Smith, Luther Hooks, Ellen B. Queener, John F. Shea, Clint Sulfridge Jr., Shipley Johnson and James V. Corser.

### PADUCAH 20 YEARS

Jesse W. Shelbourne, William R. Bone, Joseph W. Mack, James W. Abell, Harold Long, Robert J. Groben, Paul U. Elliott, Augustus J. Legeay, John D. Armstrong and William G. Billingsley.

## ORNL staffers attend world-wide meetings

ORNL staff members are speaking at a number of international meetings during May.

John V. Cathcart will be representing coauthors Richard E. Pawel and Guy F. Petersen at the Fifth International Congress on Metallic Corrosion in Tokyo, Japan, May 21-27. Their paper is "High Temperature Oxidation of Uranium Alloys."

### HP Meetings

Speaking several times in Central Europe is Walter S. Snyder of Health Physics Division. At the May 3-5 meeting of the Second European Congress on Radiation Protection at Budapest, he presented "Mathematical Procedures for Estimating Dose from an Internally Deposited Emitter" and a paper he co-authored with Mary R. Ford and Gordon Warner, "Estimates of Absorbed Fractions from Photon Emitters Within the Body." During the week of May 8-12 he visited the Institute of Hygiene and Epidemiology at Prague, Czechoslovakia, and lectured there on neutron dosimetry. Following this he will attend the International Symposium on Neutron Dosimetry and present a paper, "Depth Dose Due to Neutrons as Calculated for a Tissue Phantom." This meeting is in Munich, Germany, May 15-19.

Also attending the Second European Congress on Radiation Protection was Health Physics Director Karl Z. Morgan. He presented "Health Physics Measures to Implement New USAEC Regulations Relating to Radiation Exposure" and chaired one of the sessions.

### Generoso, Wolfenden

Walderico M. Generoso of Biology Division will present "Effects of Dose on the Induction of Chromosome Aberrations with Ethyl Methanesulfonate (EMS) in Male Mice" at the European Environmental Mutagenesis Society meeting in Prague, Czechoslovakia, May 13-15.

Alan Wolfenden of Metals and Ceramics Division will present a seminar at the Institut für Material und Festkörperforschung in Karlsruhe, Germany on May 18. His topic is "The Energy Stored During the Deformation of Copper Single Crystals." Also during the month he will speak on "Work Hardening Theories Analyzed in Terms of Stored Energy Data" at the Symposium on Defect Interactions in Solids in Bangalore, India.