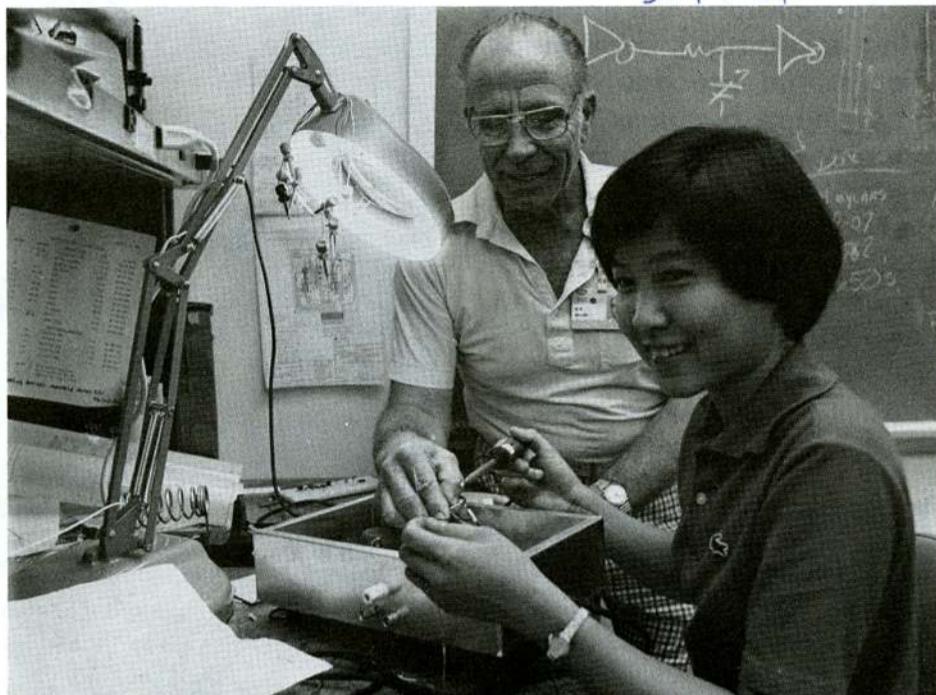


Nuclear Division News



RESEARCH PARTICIPANT — Hang Thi-Thu Nguyen, a University of Tennessee student, was one of some 450 participants in Nuclear Division summer programs. She is shown here with a supervisor, William R. Miller of ORNL's Instrumentation and Controls Division.

Summer programs end; over 450 participate

More than 450 students and faculty members were employed this summer in Nuclear Division facilities. The summer training and research opportunities are provided under 12 programs which encompass engineering, science and computer disciplines as well as administrative and non-technical areas.

Participants were assigned to one of the four energy-related production facilities at ORNL, Y-12, ORGDP and Paducah. They included 276 college undergraduates, 44 graduate students, 19 faculty members and 113 high school students and recent graduates.

One of the largest activities, involving more than 90 undergraduate engineering students, is the Cooperative Education program. These summer "co-op" students alternate work periods with study at one of 30 participating universities.

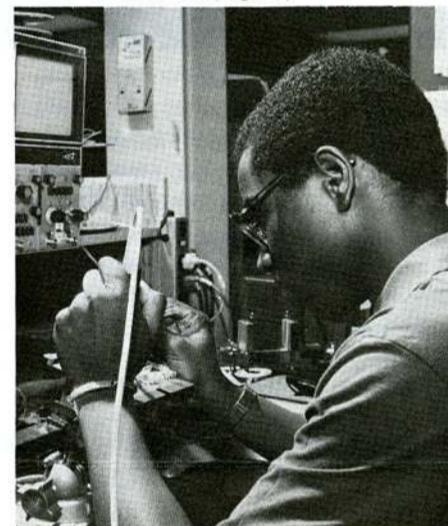
Another 40 undergraduates filled non-technical positions as part of an administrative support program in ORNL and Y-12 divisions. Two others, employed by the Environmental Sciences Division, assisted in seasonal activities connected with the Forestry Management Program.

Under the research participation program administered by Oak Ridge Associated Universities, 56 students entering their senior year were assigned in research divisions for specialized study and research under

the guidance of members of the technical staff. Projects included work in physical, life, environment or social science disciplines, engineering or mathematics.

In addition, 88 undergraduates held technical support positions at ORGDP, ORNL and PGDP. These included students majoring in chemistry, physics, engineering or computer sciences. Several worked under an affirmative action program for women and minorities.

(Please see page 8)



PRE-COOP STUDENT — Donald E. Grier Jr., an electrical engineering student, participated in the Nuclear Division's Pre-Cooperative Education program this summer, working in the Y-12 Maintenance Division.

Question Box

Are employee health records maintained in confidence?

QUESTION: What is the policy on the confidentiality of medical records? Are health records routinely reviewed when one is considered for a promotion? And are there safeguards preventing supervisors from browsing through health records?

ANSWER: Confidentiality of medical records is maintained. Disclosure of information from an employee's health record is not made without his/her consent, except as required by law or when the employee waives confidentiality by bringing his or her physical or mental condition into question by filing a complaint or by initiating an administrative claim or court action. Medical information is also subject to disclosure where failure to disclose such information could result in serious injury or illness.

The Medical Director of each installation is the custodian of the medical records and takes necessary precautions to insure confidentiality. Supervisors do not have access to medical records. Health records are not always reviewed when an individual is considered for promotion; however, the Medical Department may give an opinion concerning the ability of an employee to perform work safely and without adverse effects on his or her health. It also has the responsibility to apply appropriate medically related restrictions.

Fixed Income Rate

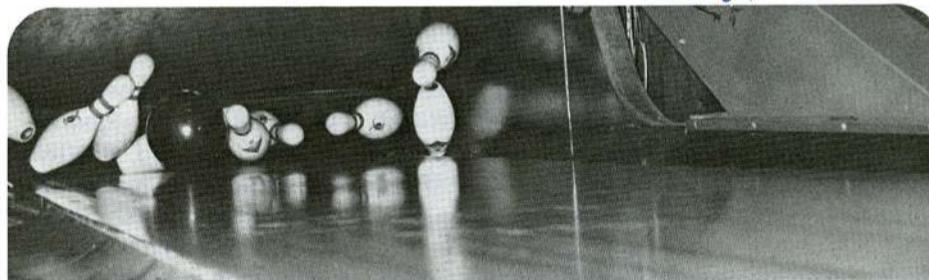
QUESTION: Why has the Fixed Income Fund portion of the Union Carbide Savings Plan paid less than the going rates of return on capital for years, in a period of historically high rates? For the last 12 months alone, the return "guaranteed" by the manager of the Fund has been about 40 percent less than that paid even by debt instruments of the Federal government.

ANSWER: "Going rates of return" are those for investment of "new" money. The Fixed Income Rate is paid on *all* money in the account, including that which may have been invested when interest rates were much lower. By this method of interest application participants receive a relatively stable rate of return on their *total* investment.

Fresh bread purchase

QUESTION: I would like to know why ORNL cafeteria workers can purchase loaves of fresh bread (and maybe other items) from the plant cafeteria when the employees of the ORGDP cafeteria are not allowed to purchase any food items from the ORGDP cafeteria.

ANSWER: The limited practice of selling bread and other pastry items through the cafeterias for home use has been discontinued at all three installations. The cafeterias will continue to supply rolls, cakes, etc., for meetings and seminars.



COMING SOON...

This is what a strike looks like in the bowling circles. And who is more familiar with strikes than Y-12's own Bill Ladd? The Product Engineering employee rolled his first perfect game recently, one sanctioned by the American Bowling Congress. His story will appear soon in the Nuclear Division News.

Features in this issue:

- Six CPS's added to rolls page 2
- Dr. Lincoln page 3
- Tennery heads
Temperature Materials Program page 5
- Y-12 chemists stage sugar beet contest page 7

Six Certified Professional Secretaries added to growing list

5455-81



Foust

Kathleen J. Foust joined Union Carbide 12 years ago, after graduation from Knoxville Business College, and being employed with Traveler's Insurance Company. She has also attended the University of Tennessee and holds an AS from Roane State Community College. She plans to attend UT again this fall.

She lives at 100 Thelma Road, Oak Ridge.

With the addition this year of six Certified Professional Secretaries, the Nuclear Division total stands at 150.

To be certified by the Professional Secretaries International (formerly the National Secretaries Association), the applicant must pass an examination covering accounting, economics, business-oriented psychology, secretarial procedures, efficiency and setting work priority, as well as business law.

Local PSI members believe the number of CPS's in our company exceeds all other companies in the country.

Those certified this year include Martha M. Dawson, ORNL Chemical Technology; Kathleen J. Foust, ORNL Operations Division; Marian D. Jamborsky, Operations Analysis and Planning Division at ORGDP; Mary Ann Russell, Y-12 Statistical Applications in the Quality Division; Anna Belle Snellings, ORNL Instrumentation and Controls; and Jacqueline K. Thacker, ORNL Physics Division.

541-280



Russell

Mary Ann Russell, a native of Knoxville, attended the University of Tennessee before joining Union Carbide in 1972. She worked with Jefferson Standard Life Insurance Company prior to that time.

She and her husband, Bill, live at Route 1 (Coalfield), Oliver Springs. They have two daughters.

81-3658



Jamborsky

M. Diane Jamborsky, Operations Analysis and Planning Division at ORGDP, is a native of Knoxville. She attended the University of Tennessee for two years, taking courses in office administration and secretarial science. Prior to joining the Nuclear Division in 1968, she worked for the Holston Manufacturing Company. She lives in Concord.

5413-81



Thacker

Jacqueline K. Thacker was born in Knoxville. She worked as a secretary to the food marketing agent at the University of Tennessee Agricultural Extension Service before joining Union Carbide in 1978.

She and her husband, Wayne, live at 7713 Cloudland Road, Powell.

5412-81



Dawson

Martha M. Dawson was born in Oklahoma City, studied at Macalester College and the University of Tennessee, and has attended the career planning workshop at ORNL, as well as several in-house courses there. She previously worked at Oak Ridge Associated Universities, the Lampert Yards Lumber Company, a law firm and the Wisconsin Telephone Company, before joining Union Carbide 10 years ago.

She lives at 5013 Macmont Circle, Powell, and has two sons.

5414-81



Snellings

Anna Belle Snellings, a native of Clinton, has an associate business science degree from Knoxville Business College. She worked with Downtown Knoxville Association before joining Union Carbide seven years ago.

She lives at 202 Elmhurst Drive, Oak Ridge.

Secretaries plan seminar, workshop

The annual seminar for career secretaries and other office personnel, sponsored by the Oak Ridge Chapter, Professional Secretaries, International, will be held at the Sheraton Inn - West in Knoxville, on September 12.

Lucy Duncan, founding partner and president of Training Services Associates of Dallas, Texas, and Denver, Colorado, will speak on "Developing Professionalism: The Base for Future Growth."

The registration fee of \$20 includes a buffet breakfast and a cheese/fruit/coffee break at noon. Registration forms may be obtained from Oak Ridge Chapter members or Alice Whittmer, registration chairman, Building 4500-S, ORNL.

The Oak Ridge Chapter of the Professional Secretaries will sponsor a workshop, "Preparing for the Certified Professional Secretary Examination." It will be held at the Oak Ridge Associated Universities conference room, Badger Road, Saturday, September 19, from 8:30 a.m. to 4 p.m. It is limited to 40 participants and pre-registration is required. The fee is \$5.

Jim Eison, psychology professor at Roane State Community College, will conduct the workshop, covering five study skill areas.

Registration may be made through Sheila Brooks, 482-1695, or 4-4370. Additional information and other PSI data may be obtained through Louise Scogin, 482-1906, or 4-2796.



Home monitoring of blood glucose

by T. A. Lincoln, M.D.

Normal, healthy individuals will have an average blood glucose (sugar) level of about 90 milligrams per 100 cubic centimeters. Patients with diabetes frequently have an average blood glucose of 150 to 200 milligrams, with occasional peaks of 250 or higher. The purpose of diabetes treatment is to keep the blood glucose level as near normal as possible.

Most patients fail to control their blood glucose and, as a consequence, eventually suffer distressing and sometimes disabling complications. Male diabetics, for example, eventually may develop sexual impotence if they fail to control their diabetes. Other patients may experience numbness, loss of sensation and shooting pains in their bodies, arms and legs. Serious bladder problems also may develop.

Urine tests

Home urine tests for glucose levels, combined with proper diet, exercise and insulin injections, have been key steps in diabetes control for over 50 years. It is now clear, however, that measuring the glucose level by testing the urine is inadequate. Urine testing will always be important because it is so easy, but fairly frequent tests of the blood glucose level also are essential for adequate control.

Testing the urine for glucose doesn't always work well for many reasons. As a person reaches age 50 and beyond, the threshold for the

excretion of glucose by the kidney gradually gets higher. Glucose is excreted into the urine only when the amount of glucose in the blood reaches a fairly high level, called the threshold level. If no glucose spills into the urine until the blood glucose level is 180 or higher (a high threshold level), the urine test will detect only this high level, which is inadequate.

Glucose excretion

Even when the glucose is excreted into the urine at a much lower level, the test results can be inaccurate. The urine in the bladder often contains excretion accumulated over several hours. A patient taking insulin may believe that the urine test results reflect the glucose level in the blood at the time of the test. It is possible, however, that the blood glucose level had changed by the time the urine specimen was voided from the bladder and tested. Even when the bladder has been completely emptied and a few drops are collected and tested a few minutes later, the urine may not accurately reflect the current level of blood glucose.

Variations in the kidney threshold level also may present problems. Except for a gradual increase with age, this level had been thought to be reasonably stable. Some experts now feel, however, that it may vary under special circumstances. If it does, it certainly limits the effectiveness of urine tests.

Assuming a stable kidney threshold, how does one estimate the blood glucose level if it is below the threshold level? For example, if the threshold is 150 and the urine test is negative, how does one determine just how far below 150 the level was? A low blood glucose level also is of concern, because it can cause unpleasant symptoms and impair alertness and thinking. This condition is called "insulin reaction" or hypoglycemia.

An obvious solution to this dilemma is a system for checking the blood glucose level at home. Two problems, however, come to mind: the method of obtaining the blood and the complexity of the test.

Home testing

Tiny, extremely sharp lancets can be put in a small, spring-loaded holder and released into the side of the fingertip, making a tiny cut in the skin. A drop of blood can be squeezed out and placed on a chemically impregnated strip which can be read on a special meter. The results are remarkably accurate, usually within plus or minus 6 to 10 percent of the true level, if the test is done properly. Most hospital laboratories cannot routinely do better than plus or minus 5 percent. Such accuracy definitely is adequate for diabetes control.

Another possibility involves the use of test strips that develop a bluish color that can be read with the naked eye. By practicing accuracy checks with the meter and duplicate drops of blood, patients may become skilled enough to eliminate meter use. Researchers at the Joslin Diabetes Clinic, in fact, believe that routine use of the meter is necessary for most patients.

What all this means is that diabetes patients can check their blood

glucose levels themselves once or twice a day. Patients who take insulin injections can check their blood glucose whenever they fear they may have eaten more than they should or that their blood glucose level is getting too low. Many insulin-dependent diabetics carry vials of regular insulin and disposable syringes and could supplement their usual insulin dosages if they discovered that their blood glucose levels were elevated. They could also carry tubes of test strips and perform the tests, for example, in the privacy of a rest room.

Frequent checks

Many physicians and patients may cringe at the idea of diabetics modifying their insulin dosages on their own. However, most diabetes specialists now feel that the patient must learn how to manage the day-to-day changes in blood glucose level that are caused by the inevitable variations in food intake, exercise, illness and emotion. This procedure could be hazardous, unless the patient and physician work closely together as a team. The patient, for example, must develop sufficient skills to know when and approximately how much insulin to use.

Most diabetes specialists agree that expecting the glucose level to be regulated with one insulin injection per day is totally unrealistic. Pills are almost always unsatisfactory. Who can follow a meticulous diet and still survive in this competitive world with all its work and social demands? More flexibility, however, is possible with more frequent testing. Patients must be willing to make the investments of small amounts of money and of considerable energy and time to develop the essential skills.

Save Energy / Share the Ride

EMPLOYEES TAKING CLASSES AT UT: Interested in joining or setting up a car pool? Send name and class schedule to G. S. Zachry, MS-B8, 4500N, ORNL (phone 6-6755). Schedules will be copied and distributed to others taking classes. Please include self-addressed plant mail envelope and send as soon as possible.

Y-12

VAN POOL RIDERS from Maryville/Alcoa to East, North or Central Portal, 8-4:30 shift. G. D. Copenger, plant phone 4-1380; home phone Maryville 983-5939.

ORGDP

WANTED: two members to join two-person carpool from Farragut or West Knoxville, 7:45-4:15 shift, Portal 2. Call Nancy Buttner, work phone 4-9128; home phone 966-2955.

CAR POOL MEMBER needed from Karns area to Portals 1-4, 7:45-4:15. Gary Hilton, plant phone 4-8455.

ORNL

RIDER needed from Clinton Highway area, North Knoxville to West Portal, 8-4:30. Jack Posey, plant phone 4-4084; home phone 947-3261.

RIDE NEEDED from Oak Ridge Highway between Karns and Solway to East Portal, 8:15-4:45. Peterson, plant phone 4-4483; home phone 690-3989.

RIDE NEEDED from Old Harriman Highway (2 miles west of Oliver Springs). Schneibel, plant phone 6-4644; home phone 482-3423.

Patents

James M. Leitnaker, ORGDP, for "Delta Ferrite-Containing Austenitic Stainless Steel Resistant to the Formation of Undesirable Phases upon Aging."

Karl E. Rapp Jr. and Bruce B. Marshall, both of ORGDP, for "Porous Article and Method for Making Same."

UNION CARBIDE

Nuclear Division News

UNION CARBIDE CORPORATION
NUCLEAR DIVISION
Post Office Box Y
Oak Ridge, Tenn. 37830

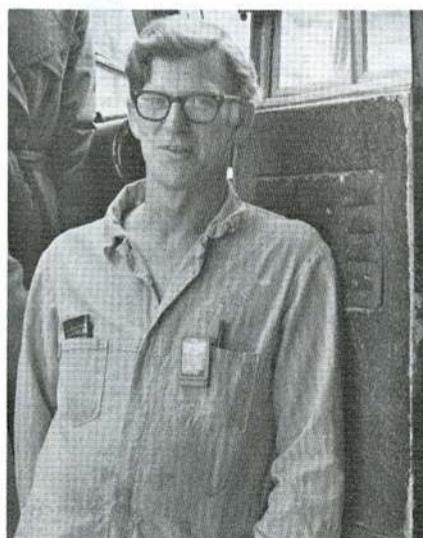
EDITOR (Y-12)
James A. Young, 574-1643

ASSOCIATE EDITOR (ORNL)
Cindy Ross Lundy, 574-4163

ORGDP
Ruby A. Miller, 574-8092

PADUCAH
Darlene M. Mazzone, Bell 208

Published every other week for employees such as:



W. B. "Jack" Skinner, Y-12 Research Services.



INTERNATIONAL ASSOCIATION OF BUSINESS COMMUNICATORS

181-283

Recent Retirements

181-281

181-264



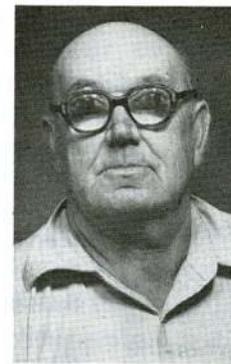
Everett C. Cox
Materials Forming
Y-12
37 years service



Austin R. Suneson
Plant and Equipment
ORNL
20 years service



Acie L. Rainwater
Research Services
Y-12
29 years service



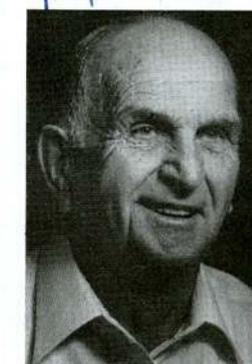
James J. Cox
General Expediting
Y-12
31 years service



Elizabeth B. Richardson
Operating Contractors
Project Office
34 years service



William L. Benzenhafer
A Wing, H 2, F Area
Y-12
28 years service



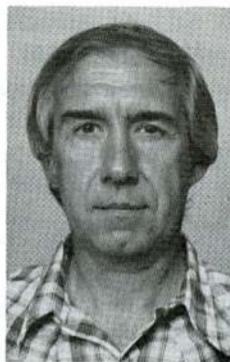
Roy C. Alley
Site Engineering
Y-12
23 years service



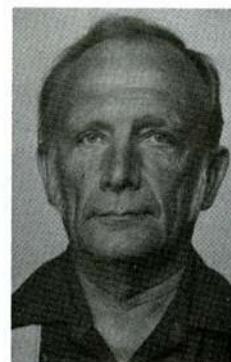
Homer C. Day
A Wing, H 2, F Area
Y-12
30 years service



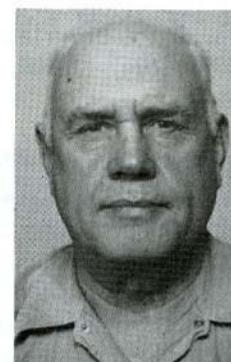
William J. Hatcher
Plant and Equipment
ORNL
31 years service



Nestor L. Cacheiro
Biology
ORNL
14 years service



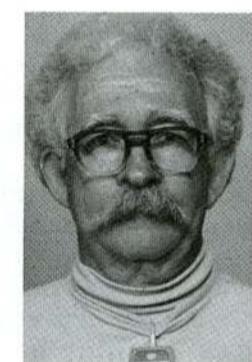
James H. Knox
Instrumentation and
Controls
ORNL
35 years service



Ted C. Russell
Plant and Equipment
ORNL
33 years service



Rubin J. Stephens
Employee Relations
ORNL
35 years service



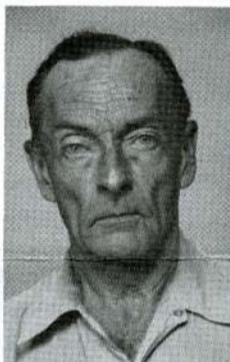
Melvin G. Willey
Engineering
ORNL
29 years service



Hollis L. Ashburn
Equipment Services
Y-12
26 years service



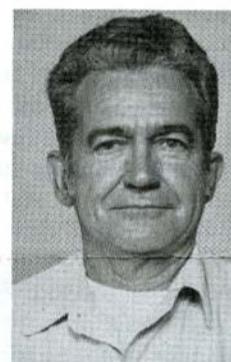
James H. Cummings Jr.
Finance and Materials
ORNL
35 years service



John T. Leslie
Plant and Equipment
ORNL
36 years service



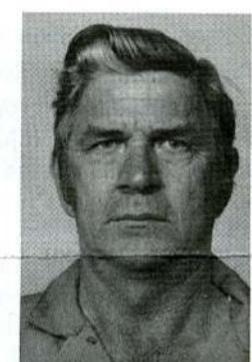
A. Earl Massengill
Operations
ORNL
24 years service



Ted M. Newman
Plant and Equipment
ORNL
29 years service



Addie D. Lynch
Production Radiation
Testing
Y-12
30 years service



John R. Rushing
Maintenance
Paducah
30 years service



Glenn H. Shannon
Maintenance
ORGDP
37 years service



Edna B. Ault
General Accounting
ORGDP
36 years service



Henry H. Ridenour Jr.
Maintenance
ORGDP
27 years service



Clarence L. Mitchell
Maintenance
ORGDP
36 years service



Roy C. Hembree
Technical Services
ORGDP
36 years service



Harry L. Gray
Barrier Manufacturing
ORGDP
35 years service



James H. Cantrell
Operations
ORGDP
34 years service



Carl T. Wilson
Maintenance
ORGDP
37 years service



Mitchell O. Vickers
Maintenance
ORGDP
22 years service



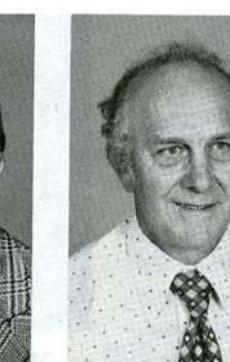
Paul H. Spence
Security and
Plant Protection
ORGDP
37 years service



Leon Smith
Maintenance
ORGDP
37 years service



Harry D. Robbins
Enrichment Technology
ORGDP
35 years service



Fred R. Sanders
Maintenance
ORGDP
36 years service



Ruby L. Jones
Maintenance
ORGDP
32 years service

181-259

4990-1



NEW PROCEDURE — Employees in the Paducah smelter operations department have developed a new procedure for removing the refractory liner from this six-ton induction furnace. The development will lower the removal time from 12 hours to 1 hour and will eliminate some of the hazards previously associated with the task.

Paducah employees develop procedure for liner removal

A new procedure for removing a 5,000-pound refractory liner from an induction furnace has been developed by the Paducah smelter operations department. The development will cut the liner removal time from the plant's Brown Boveri furnace from a maximum of 12 hours to 1 hour and will eliminate some of the previous hazards associated with the job. The procedure can be performed only on the Brown Boveri furnace.

Eliminates vibration

Until a few months ago, the refractory material, which acts as a containment vessel between the furnace coil and the metal, had to be manually chipped away and removed from the furnace in buckets. The new method requires only 10 minutes of a worker's time to chip two holes in the liner and insert the lifting device. The liner is then removed from the furnace by an overhead crane.

Smelter personnel, who have performed the procedure five times, say they are confident the operation can be utilized on a regular basis. "Not only does the new method remove operating personnel from a confined environment, it also adds life to the induction coil by eliminating the excessive vibration generated by the chipping hammers," said Bill Boren, head of the smelter operation.

Removes contamination

The \$1-million furnace facility was installed to recover the value of scrap metal generated during the Division's 10-year uprating and improvement program. Through the replacement or improvement of all gaseous diffusion process equipment in the nation's three enrichment plants, the program, now near

completion, has increased the U.S. capacity for enriching uranium by about 60 percent.

In addition to producing uncontaminated metal ingots that can be sold on the open market, the furnace removes some of the contamination from scrap that contains minute quantities of uranium, enabling it to be stored more easily. The nickel-scrap production rate for the furnace, which is operated by personnel in the Power, Utilities and Chemical Operations Division, is 3,500 pounds per hour.

The production sequence begins at an elevator unit that automatically dumps barrels of scrap metal into a hopper, where the metal is weighed. It is then discharged onto a tray-type vibratory feeder that releases it into the furnace at a controlled rate. The furnace coil creates an electromagnetic field, inducing a current that produces heat (up to 3,000°F) and melts the metal.

Poured into mold

The furnace cover is then removed and the molten metal is poured into a preheated two-ton mold by tilting the furnace. The metal is weighed by a scale attached to the mold-holding device and moved by overhead crane to the mold-cooling area.

After an eight-hour cooling period, the ingots are removed from the mold and are ready for sale or storage. More than 14 million pounds of scrap metal have been smelted at the Paducah facility over the past 5 years. The U.S. Treasury has received over \$23,800,000 from the sale of the metals, and some \$5 million worth of nickel and monel ingots are ready for sale but have not yet been placed on the market.

Tennery appointed director High Temperature Materials

The appointment of Victor J. Tennery as director of the High Temperature Materials Program and the proposed High Temperature Materials Laboratory at ORNL has been announced by Alexander Zucker, associate director for the physical sciences.

Initial authorization for design and construction of the \$17-million HTML facility as a national "user" center was included in the DOE budget request for FY 1982, now before the Congress.

Tennery, a member of the Nuclear Division staff since 1970, has served most recently as a group leader for ceramic technology and for structural ceramics in the Metals and Ceramics Division. He succeeds John V. Cathcart, who was acting HTML director. Cathcart, group leader for surface and solid-state reactions, will return to this position full time.



Victor J. Tennery

technology areas as oxide and nitride ceramic fuels for fast breeder reactors; potential radiologic impacts of breeder fuel systems; ceramic materials for high-temperature heat exchangers; and high-temperature corrosion of refractory materials used in industrial furnaces for processing metals and ceramic materials.

Since 1979, he has directed research by the structural ceramics group on hard ceramic materials and fracture of ceramic materials carried out as part of the DOE-sponsored materials science program.

Areas of research

In addition, he has served as principal investigator for materials research and development projects in the fossil, nuclear, solar and conservation programs. During 1979, he was a member of an *ad hoc* committee which reviewed the national magnetohydrodynamics program for the Director of DOE's Office of Energy Research.

Before coming to the Nuclear Division, Tennery was professor of ceramic engineering at the University of Illinois, Urbana. He holds degrees in ceramic engineering from the University of Illinois, where he received the PhD in 1959.

He is a fellow of the American Ceramic Society, and has served as an officer of the Electronics Division and is currently on its Public Relations Committee. He is also a member of the American Association for the Advancement of Science and the American Society for Testing and Materials.

Tennery, his wife Joyce, and their two daughters live at 113 Newell Lane, Oak Ridge.

Research center

The HTML is designed to provide the United States with a national center for basic and applied research on the performance of materials at elevated temperatures. It is to be the site for collaborative programs with academic and industrial researchers to help solve materials-related problems associated with both nuclear and nonnuclear energy generation and conversion technologies.

The aim of the High Temperature Materials Program and of HTML will be to identify new materials for use in high-temperature energy systems and to develop improved understanding of processes in current materials which limit their use in high-temperature environments.

Broad subject range

This program covers a broad range of research on the structure and behavior of metals, semiconductors, and ceramic materials in environments of importance for application in energy conversion systems.

HTML programs sponsored by the Office of Basic Energy Sciences and various energy technology offices within DOE will focus on six principal research areas: mechanical behavior, environmental interactions, physical properties, high-temperature chemistry, structural characterization and materials synthesis.

Tennery has conducted research and development in such applied

Safety Scoreboard

Time worked without a lost-time accident through September 2:

Y-12 Plant	344 Days	11,465,000 Employee-Hours
ORGDP	82 Days	2,283,405 Employee-Hours
ORNL	480 Days	11,299,945 Employee-Hours
Paducah	400 Days	3,992,000 Employee-Hours

6145-1



TOURNAMENT CHAMPIONS — The Steamers, made up of employees in Paducah's Power, Utilities and Chemicals Division, recently took honors during the plant's softball tournament. The team held a regular-season record of 7-3 and completed the end-of-season tournament with a 3-0 to clinch the title. In the front row, from left, are Betty Cleary, Ken Hollowell, Keith Anderson, Jerry Arnzen, Joyce Sims and Larry Butler. In the back row are Ron Meadows, Earl Hobbs, Tommy Bobo, Mike McKendrick and Jack Logsdon. Not pictured are Steve Bauer, Judge Burkhart, Ken Blaisdell, John McWaters, Jasper Whittemore, Gretchen Burkhart and Sonny Stuart.

Final golf tournaments...

ORGDP Dead Horse Lake

Ron Roddy took the Dead Horse Lake tournament for ORGDP duffers for August, clipping off a neat 71. He was followed by J. D. Kirkpatrick with a 77. In handicap scoring it was C. E. Powell, 79; and M. Johnson and H. Cresswell, tying with 82 and 79 each.

In the second division, it was Ed Ellis, 80; R. E. Housley, 82. Handicap honors went to J. Ballard and R. Grubb, tying with 86 and 89 respectively. Bob Mikkola came in second with 93.

In the third division, it was G. Jones, 87; W. R. Plummer, 91. Handicap laurels went to Bob Hyland, 92; and V. R. McNeely, 94.

ORNL Wallace Hills

The final ORNL golf tournament of the year, held at Wallace Hills, saw W. Miller take low score with an even 72. He was followed by J. Connatser with 73. Handicap lows went to S. Schrock, 79; A. Wright, 76 and L. Manley, 77.

In the second division, it was S. Smith, 80; W. Burch and W. Paul, each with 81. Handicap laurels went to C. Saffell, 80; Ed Kobisk, 81.

In the third division, it was W. Eldridge, 83; W. Sanders, 89. Handicap lows went to M. Ford, 89; and G. Courville, 92.

Next issue...

The next issue will be dated September 24. The deadline is September 16.

Y-12 Bays Mountain

Merle Emery took the Bays Mountain tournament for Y-12ers with a 68 score. He was followed by T. Fugate with a 74. Handicap lows went to P. Maples, 77; and J. R. Mathis, 74.

The second flight went to R. Boyd, 79; Fred Hammond and H. Henderson, each with 82. Low handicap cards were turned in by R. W. Morrow, 80; and T. Fowler, 83.

The third division was another tie; this time it was R. Owenby and Bud Moore, each with 88. C. Frazier took second place with 89. Charlie Niemeir and D. Loveless tied for handicap laurels, 91 and 92 respectively.

ORGDP hootenanny set September 12

There's something for everybody at the K-25 barbecue/hootenanny set for Saturday, September 12, at the Clark Center Recreation Park.

Do you like karate? Blue-grass music? Delicious barbecue? Games for the children? A hot softball tournament? A day of socializing with fellow employees? You can get all of these, and much more, at the big annual affair.

Tickets are on sale throughout the plant. Retirees (always welcome) are urged to contact Virginia Donahoe for their tickets. (If you fail to pick one up, come on out...there'll be some at the entrance.)

Old-timers have nearly lost count of how many such hootenannys have been staged...but the very nature of the event's name gives away its age.

Anniversaries

ORNL

35 YEARS

R. P. Jernigan Jr., Fusion Energy; James Capshaw, Finance and Materials; Harry R. Bronstein, Chemistry; Alfred C. Butler, Industrial Safety and Applied Health Physics; John H. Gillette, Central Management; Gorman S. Hill Jr., Health and Safety Research; and Elizabeth D. Johnson, Instrumentation and Controls.

30 YEARS

Billie S. Dunlap, Information; John P. Judish, Health and Safety Research; Georgia C. Westmoreland, Health; Charles C. Foust, Analytical Chemistry; Cleveland T. Johnson, Finance and Materials; John M. Chandler, Chemical Technology; and Clayton O. McNew Jr., Instrumentation and Controls.

25 YEARS

Alfred L. Massey, Jack Keeney, Minton J. Kelly, Virgil B. Isham, Robert G. Ross and Robert D. Slover.

Y-12

35 YEARS

Donald Zucker, Chemical Services; and Jerry A. George, Labor Relations.

30 YEARS

William S. McBee Jr., Engineering; Wilmeth S. Milligan, Casting; Clyde J. Price, Buildings, Grounds and Maintenance Shops; Veneta T. Lawson, Development Division; Ulyses Hatmaker, Dispatching; Eldrige Payne, Buildings, Grounds and Maintenance Shops; Mattie R. Robinson, Plant Laboratory; and Clarence D. Wells, Utilities Administration.

25 YEARS

Clarice D. Cagle and Arthur L. Hall.

20 YEARS

Robert E. Bartley, James C. Franklin, William H. Thompson Jr., Joe C. Brumit, Laird F. Dickerson, Howard C. Parton and Fannie S. Arnold.

PADUCAH

30 YEARS

Babe R. Peebles, Plant Engineering; Stanley Duncan, Shift Operations and Plant Protection; James E. Hickman, Power, Utilities and Chemicals; Richard R. Mason, Plant Services; Roy W. Stroup, Fabrication Shops; Robert L. Trieglaff, Instrument Department; Joe D. Lindsey, Employee Relations; Fred P. Beckman, John C. Locke, Robert C. Ward and Harry B. Goode, Power, Utilities and Chemicals; Leonard J. McNelly, Cascade Operations; and Bill D. Penry, Maintenance.

Translating, anyone?

The 1982 World's Fair is seeking linguists in the area in order to establish a "language bank" to be used during the May-October exposition in Knoxville.

Persons proficient in another language (either in translating or interpreting) should contact Fair officials. A questionnaire is available from Marian Kozar, Community Relations Department, The 1982 World's Fair, P. O. Box 1982, Knoxville 37901. She may be contacted at Knoxville 971-1508.

Final concert set for September 20

Steve Scarbrough will perform Sunday, September 20, at 7:00 p.m. at the Oak Ridge Performing Arts Pavilion. This concert is the last in the Oak Ridge Concert Series co-sponsored by the Nuclear Division, the Arts Council of Oak Ridge and the City Recreation Department.

Scarbrough, who plays acoustic and 12-string guitar, has performed

in the East Tennessee area for many years and toured in Canada last year. His music has been characterized as "middle of the road" and includes folk, country, pop and light-rock standards.

Persons attending the concert should bring their own lawn chairs or blankets. There is no admission charge; however, donations are used to defray expenses.

Family Mixed...

The Carbide Family Mixed League recently wound down its summer bowling with the Oops team taking the crown. The Oops, Edith Duckworth, Elmer Johnson, Tillie Plaza, and Sewell Brown outpaced the Pensetters.

High game award went to Mary Goldberg and Mike Brown, with series highs going to Jackie Jones and Richard Sampson.

A No Tap Tournament was held later, and the winners were Arnetha Johnson and Bob Lucke in first placed; followed by Betty Thompson and Ray Eskridge; and Madge Newton and Norman Jefferson.



"Quality assurance today — confidence and excellence tomorrow."
(Submitted by John K. Prickett, PGDP.)

Sugar beet contest?

Y-12 chemists report unscientific studies for ethanol production

Why would two chemists get involved in a sugar beet growing contest? This question and its answer were quickly resolved in the Y-12 Plant Laboratory recently.

Wil Davis and Al Chambles, both in the advanced analytical services group at the Laboratory, squared off in early February to fight their beet contest to its conclusion.

Why a sugar beet contest? A rather complex string of events brought about the "war." Davis has a problem with kudzu in his backyard garden at his home at 109 Tabor Road, Oak Ridge. The uncontrolled and burdensome nature of this plant has earned a reputation throughout the area. Davis and Chambles concluded that, if such a plant could be made to yield a reasonable quantity of ethanol, kudzu might prove a boon for the world's dwindling supply of petroleum. It also might prove profitable for individuals or small groups to produce fuel on a small scale. Davis, aware that Chambles had been successful in turning excess grapes into a wine with a relatively high alcohol content, called on his co-worker to assist in distilling the weed.

Kudzu distillation requires complicated steps and extra skills to make ethanol

It became apparent rather quickly that the starchy kudzu would require extra steps or specialized yeast and extra skills for the ethanol conversion. Meanwhile, the kudzu problem remained. But the two decided to look elsewhere for a plant that could be converted directly into ethanol with the action of ordinary baker's yeast.

Research on the subject suggested that sugar beets would be a high energy source. Since 45 to 50 percent of the raw sugar produced in the United States comes from beets, the two chemists set to work. They found

that sugar beets grow best in California, Minnesota, Colorado, Idaho and North Dakota...but Tennessee? No, indeed.

They also found that the Tennessee Valley Authority has expressed interest in experiments to determine other crops than corn for the home-grown fuel alcohol. They are presently involved in studies to determine if sugar beets, Irish potatoes, Jerusalem artichokes, Chinese water chestnuts and sweet potatoes are good sources of ethanol. Chambles says there is a tendency not to use corn in the area with the feeling that food is being taken away from the table. "Indeed surprising," he says, "in view of this region's historic use of corn for the illegal production of moonshine!"

'Let's see who can grow the biggest sugar beet'

So, in February the two squared off. The seeds were ordered. Then Davis threw down the gauntlet, "Let's see who can grow the biggest sugar beet." The bounty was to be a dinner at an exclusive restaurant. No limits were placed on methods of growth, use of fertilizers, hormones, watering, etc.

David immediately planted his seeds indoors with an elaborate plant light arrangement. His seedlings prospered. Chambles planted indoors without plant lights. His seedlings came up, but immediately grew spindly and died. More seeds.

Countdown brings generous supplies of water to Chambles plants

During mid-March, a comparison showed that Davis' plants were about six inches high, while Chambles' were only an inch high...so the trailing chemist bought an inexpensive plant light.



BEST OF SHOW — Al Chambles proudly displays his winning entry in the sugar beet contest. His prize was a big dinner out.

In early spring, it was obvious that Davis' plants were outgrowing those of Chambles, despite the latter's efforts with transplanting, lights and a cool frame. So the trailing Chambles began an elaborate and consistent feeding program, which included all kinds of commercial plant foods and even birth control pills.

During May, the two compared plants and found them to be of about equal size. The stems/leaves were of comparable growth. But the circumference of the base stem cluster gave some indication of the size of the beets beneath the soil.

In July, Chambles began adding a generous supply of water to his prize plants.

The final decision came last month, as the two beets were weighed, and Chambles came up the winner, 740 grams (about 1½ pounds) to 702 grams.

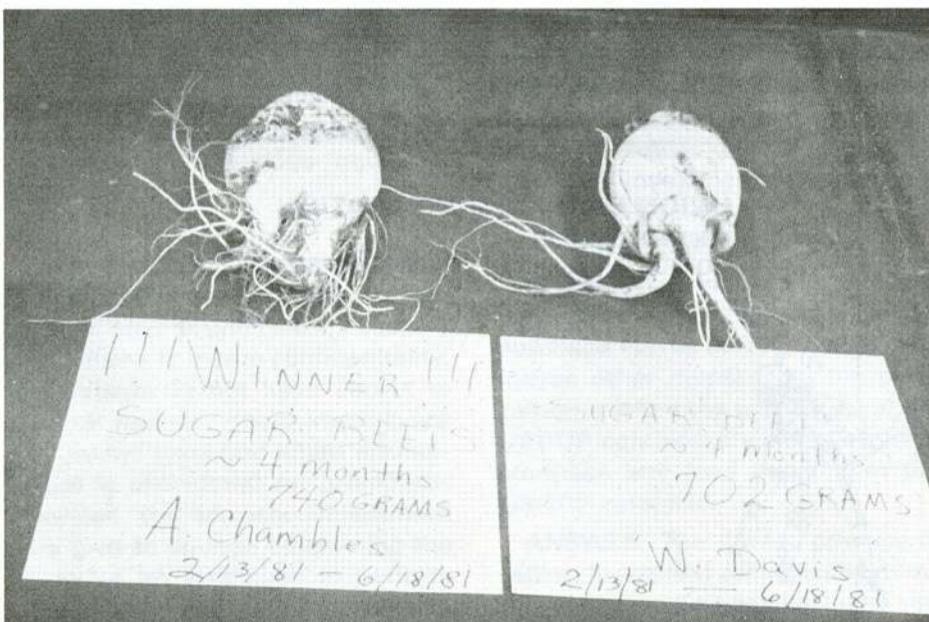
Further research will be required, according to the two. The final watering of the Chambles beet caused it to lose more water than the other. Also, it was shown that the higher the water content, the lower the sugar content.

They also concluded that, while growing the biggest sugar beet may have been competitive and fun, it was of little scientific value in research for growing beets for actual sugar/ethanol production.

But they did conclude that East Tennessee is definitely a good place to grow sugar beets.

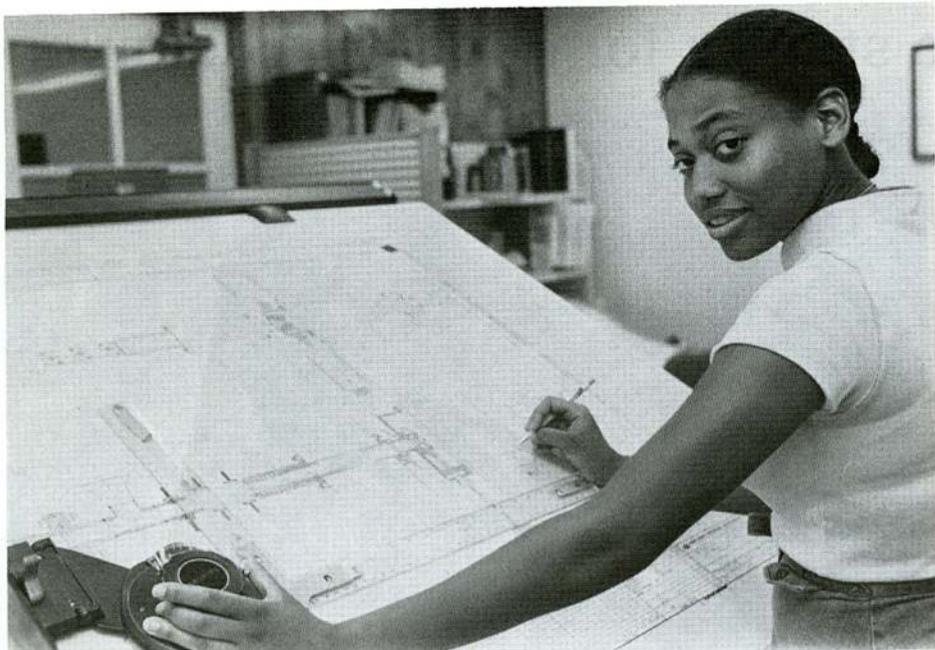


SECOND-BEST BEETS — Wil Davis displays his Oak Ridge-grown beets, which came in a mere second.



HAIL THE CONQUERING HERO — The sugar beet at left weighed 38 grams more than its competition. Al Chambles, Y-12 Plant Laboratory, coaxed the giant into the winning circle.

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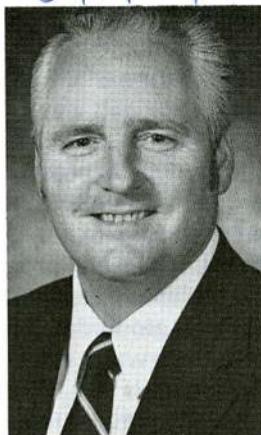
ENGINEERING PRE-COOP — Gene M. Walls, ORNL Engineering, was one of five participants in the Nuclear Division's Pre-Cooperative Education Program.

Computer Sciences promotes three

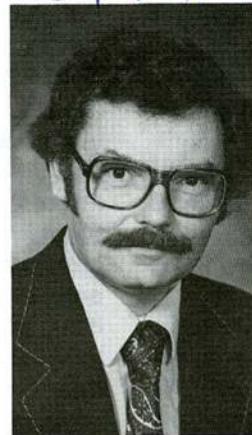
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Crowell



Murphy



Westfall

Joseph S. Crowell, Brian D. Murphy and Robert M. Westfall have been named department heads in the new Technical Applications organization of Nuclear Division Computer Sciences.

Crowell is head of the Engineering Department. A native of Enka, N.C., he received his BS degree in nuclear engineering and MS degree in applied mathematics from North Carolina State University in 1961 and 1963, respectively.

He joined the Nuclear Division in 1962. During a two-year leave of absence, he served as head of the computer section of the International Atomic Energy Agency, Vienna, Austria. He has served in various capacities in Computer Sciences and most recently was head of the Physics Department.

Crowell and his wife, Mayme, have two children. They live on Nebraska Avenue in Oak Ridge.

Murphy succeeds Crowell as head of the Physics Department. He will also continue as head of the environmental and geophysics section until his replacement is named.

Murphy is a native of Dublin, Ireland. He received BS degrees in physics and mathematics and a master's degree in physics from the National University of Ireland. He also holds a PhD degree in physics from the University of Virginia.

Prior to joining the Nuclear Division in 1974, Murphy taught at the University of Wisconsin, did nuclear research at the University of Virginia

and was a radiation physicist at the Medical College of Virginia for the National Aeronautics and Space Administration.

Murphy is a member of the American Physical Society and the American Associations for the Advancement of Science. He and his wife, Sheila, live in Oak Ridge with their two daughters.

Westfall heads the Nuclear Engineering Applications Department. A native of Norman, Okla., he received the BS degree in engineering physics from the University of Oklahoma and his MS and PhD degrees in nuclear engineering from the University of Washington and the University of Virginia, respectively.

Westfall served two years in the U.S. Army. He joined the Nuclear Division more than seven years ago and most recently was head of the reactor physics applications section. From July 1980 to July 1981, he was on special assignment to the Center for Nuclear Studies, Saclay, France.

Westfall holds membership in several professional organizations, including the American Nuclear Society and Sigma Xi. He and his wife, Nancy, live in Oak Ridge with their three children.

ND summer programs

(Continued from page 1)

Thirty-seven graduate students were chosen from among 234 applicants to receive summer research internships. They were selected on the basis of academic standing and ability in research areas related to national energy needs.

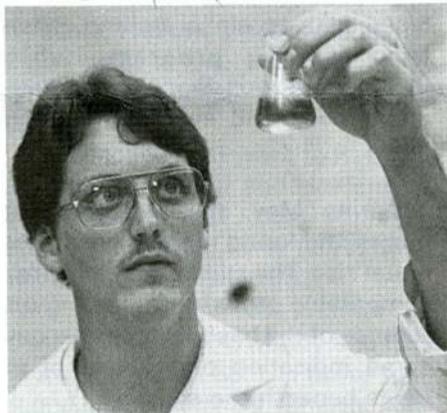
Twenty-four high school students were chosen for the National Research Apprenticeship Program, sponsored by ORNL, ORAU and Knoxville College. This new program encourages students, especially minorities, to seek science and engineering careers. The students meet twice weekly with professionals from the Nuclear Division, who introduce them to energy-related occupations.

The Paducah Plant sponsored 60 high school sophomores and juniors in a science and energy summer program. The students attended classes in energy, science, mathematics and English.

Five recent high school graduates participated in the Pre-Cooperative

Engineering Education Program. The students will enroll in engineering schools this fall, and after their freshman years, will be eligible for the regular co-op program.

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SUMMER PROGRAM PARTICIPANT — Randall M. Grimes, a graduate student in chemistry, spent the summer working in ORNL's Chemical Technology Division. He was one of over 450 participants in summer programs.

Fusion Energy employee dies



Mr. Bighel

A citizen of Australia, Mr. Bighel joined the ORNL staff in 1979. He was a member of the Jewish Congregation of Oak Ridge and the American Physical Society. Mr. Bighel was a native of Bucharest, Rumania.

Survivors include his wife, Mary Olga Balint Bighel; a son, David; and a daughter, Sonya, all of 105 East Morningside Drive, Oak Ridge; and his parents, Mr. and Mrs. Jules Bighel.

Burial was in Chatswood Cemetery, Sydney, Australia. Memorial contributions may be made to the American Cancer Society, c/o Mrs. Eugene McClanahan, 408 Greenwood Drive, Clinton.

Liviu Bighel, a research staff member in the ORNL Fusion Energy Division, died August 30 at the University of Tennessee Hospital in Knoxville.

Patent granted

John F. Preston and Kibbee D. Streetman, both of ORGDP, for "Process for Reclaiming Copper from Nuclear Industry Waste."



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