

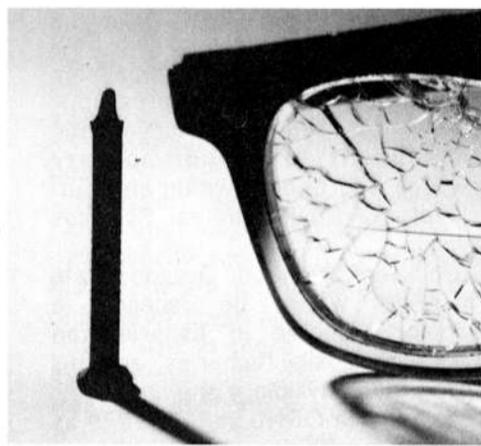
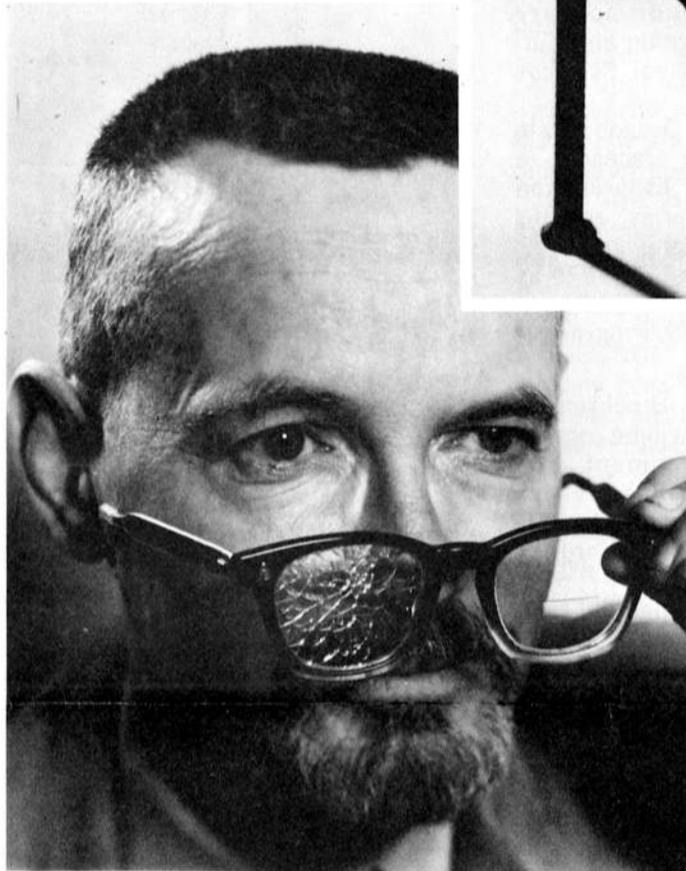
Nuclear Division News



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

Vol. 8/No. 5/ March 3, 1977

Foresight saves eyesight



▲ Masonary nail which shattered Redford's safety glasses.

◀ Redford loses an eyeglass lens, but saves an eye.

Fortunately for him, J. Les Redford of ORNL's Instrumentation and Controls Division wears safety glasses, not only at work, but also while performing routine duties around his home. Recently he installed paneling in his basement using hardened masonry nails to fasten furring strips to the concrete block walls. While working, a nail head flew back and shattered the right lens of his safety glasses. Redford's foresight in wearing protective glasses probably prevented serious damage to his eyesight.

Statistics provided by the National Society for the Prevention of Blindness reveal that during 1975, 40 percent of all reported eye injuries occurred in or around the home, compared to 28 percent while on the job. Each year, almost 1,000 persons in the U.S. are blinded by eye accidents. Reports estimate that approximately 90 percent of all eye injuries are preventable, and the wearing of safety glasses is a giant stride in the right direction.

Experimental success seen again in fusion research

Researchers at Oak Ridge National Laboratory have achieved another experimental success in a long-range project to demonstrate the feasibility of harnessing fusion energy.

Fusion is a thermonuclear reaction in which isotopes of light elements, such as hydrogen, contained in a hot gas called a plasma, are made to fuse together releasing energy in the form of heat which could be used to produce electrical power.

Recent experiments have demonstrated for the first time that electrons, one of two components of a thermonuclear plasma fuel, can be heated to significantly higher temperatures by an ORNL-developed plasma heating technique known as "neutral beam injection."

Additional encouragement

Lee Berry, of ORNL's Fusion Energy Division, said a series of experiments just conducted in ORMAK provides additional encouragement that the neutral beam injection system may lead to eventual attainment of the 60 million degree temperature required to produce energy from the thermonuclear fusion reaction.

Fusion research at ORNL and other laboratories in the U.S. is supported by the Energy Research and Development Administration with the goal of making fusion energy available for significant production of electrical energy by the turn of the century.

High temperatures

John Clarke, director of the Laboratory's fusion energy program, explained: "Plasma is an extremely hot gas composed of both ions and electrons and, for fusion reactions to take place, it is necessary that both be heated to extremely high temperatures. In prior experiments, we have successfully heated ions to 15 million degrees by the neutral beam injection method, but under the conditions used the electron temperature was not raised. In a recent series of tests, however, by varying the injection current the electron temperature was raised to eight million degrees, demonstrating that the system can be used to heat both components."

The neutral beam injection technique consists of firing a hot stream of atoms from a particle accelerator into a magnetic field in which the ions and electrons of a plasma are held. Collisions between the stream and the ions and electrons already in the plasma cause a temperature increase in the plasma. The system is to be used in the Princeton Large Torus

now under construction by the Energy Research and Development Administration at Princeton University. The PLT is a much larger fusion device than the ORMAK and is slated to begin operation in 1977.

Held in magnetic fields

At the extremely high temperatures necessary for a fusion power reactor, the isotopes of hydrogen exist in a fourth state of matter, called plasma. In this state, electrons are no longer tied to an atomic nucleus, and they, plus the hydrogen nuclei, or ions, are confined through the use of very powerful magnetic fields. Researchers then attempt to bring the mixture to the temperature required for fusion by adding energy through resistive, compressive or beam heating.

Electrical reduction shown in home refrigeration study

Electricity used to operate refrigerators in the average American home could be reduced more than 50 percent by incorporating several energy-saving features in their design, ORNL researchers have found.

The study, "Energy and Cost Analysis of Residential Refrigerators," was sponsored by ERDA and the Federal Energy Administration.

According to the report by Robert A. Hoskins and Eric Hirst of ORNL's Energy Division, refrigerators account for six percent of total household fuel use and 16 percent of residential electricity use. Thus, improvements in new refrigerators can have significant long-term conservation benefits.

A computer model, which determines energy flows and electricity use in residential refrigerators, was developed as part of the study. The model evaluates energy and cost (both initial and operating) impacts of alternative energy-conserving designs. The results show that large opportunities for reducing refrigerator electricity use exist with only slight increases in initial cost.

Refrigerator design alternatives examined using the ORNL model were: changes in insulation type and/or thickness, removal of evaporator fan motor from refrigerated space, use of anti-sweat heater switch, elimination of frost-free feature, improved compressor ef-

(Please see page 2)

In this issue . . .

Again this year, Union Carbide employees and their families are able to take advantage of circus discount tickets, as Ringling Brothers comes to town. Details and ticket application appear on page 4.



Other features:

- Environmental Science promotions page 2
- Question Box page 3
- Y-12 Promotions page 3
- Controlled burning in area page 5
- Medicine Chest page 7

ORNL technical communicators receive top awards from STC

Many ORNL employees won category certificates and Best of Show Awards at the 1977 Society for Technical Communication (STC) awards dinner, East Tennessee Chapter.

Winners of Awards of Distinction and Excellence in the publications competition and first- and second-place certificates in the art competition will be entered in the STC 24th International Technical Conference to be held in Chicago in May, 1977.

ORNL award winners include: a second-place for John Waggoner for "Continuous Tone Illustration/Rendering Other Than Airbrush" and Jane C. Parrott for "Design/Letterhead." This Technical Art Competition was cosponsored by the East Tennessee Chapters of STC and Industrial Graphics International.

Awards of Distinction, Excellence

In the Publications Competition, ORNL won three Awards of Distinction: **Nuclear Air Cleaning Handbook** by the Technical Publications Department won in Handbooks and Manuals; "Relation of Intermediate-Sized Pressure-Vessel Tests to LWR Safety" by J. G. Merkle, G. D. Whitman and R. H. Bryan, **Nuclear Safety**, won in Technical Journal Articles; and

Nuclear Safety by the Engineering Technology Division won in Technical Journals.

Three Awards of Excellence were also received by ORNL: In Handbooks and Manuals, **CONCEPT: A Computer Code for Conceptual Costs Estimates of Steam-Electric Power Plants** by Technical Publications; in Technical Journal Articles, "Clinical Toxicology of Mercury," accepted for publication in **Journal of Toxicology and Environmental Health** by Herbert B. Gerstner and James E. Huff; and in Brochures, **The Ice Bin Cometh** by Technical Publications.

Other winners

Other Laboratory winners included: "The Role of Core-Disruptive Accidents in Design and Licensing of LMFBR's," **Fission Product Behavior in the Molten Salt Reactor Experiment, Assessment of Water Resources for Nuclear Energy Centers, Theoretical and Experimental Stress Analyses of ORNL Thin-Shell Cylinder-to-Cylinder Model 2, Heat-to-Heat Variations of Total Strain (to 5%) at Discrete Stress Levels in Types 316 and 304 Stainless Steel from 24 to 316°C, Hydrolysis of Cations, Symposium for Public Awareness on Energy 1976 and Environmental Sciences at ORNL.**

Electrical reduction shown

(Continued from page 1)

efficiency, and increased condenser and evaporator heat transfer areas.

Insulation changes — Since 56 percent of the heat gain in refrigerators is due to conduction through insulated walls and doors, energy savings of about 22 percent can be obtained by switching from fiberglass insulation to polyurethane foam (which has a much lower thermal conductivity). Merely increasing thermal insulation thickness in new refrigerators to three inches would result in a 14 percent savings.

Anti-sweat heater switch — Most new refrigerators include an anti-sweat heater switch which the owner can adjust to operate 50 rather than 100 percent of the time. Use of this conservation measure would reduce energy use by nine percent.

Frost-free feature — Eliminating the frost-free feature would yield the largest energy savings (29 percent) and reduce retail price by \$55. However, this feature may not be adopted because consumers generally feel that the convenience of frost-free operation is worth the higher initial and operating costs.

Compressor efficiency — The major energy consuming device in the

refrigerator is the compressor, which accounts for 70 percent of the electricity used. Increasing compressor efficiency from 50 to 60 percent would cut electrical use 13 percent.

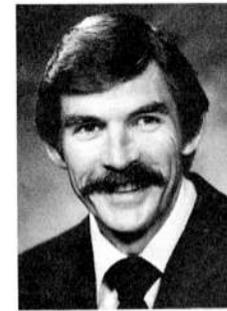
Heat transfer areas — An increase in heat transfer surface areas would allow the same heat transfer in the condenser and evaporator with smaller temperature differences. A 20 percent increase in the condenser and evaporator areas would cut energy consumption by three percent and seven percent, respectively.

Combined energy savings from all the options discussed in the report would be 71 percent. The overall retail price of new refrigerators would increase by five percent, but life-cycle cost to the consumer would be much less. Application of all these changes except for elimination of the frost-free feature would reduce electricity use 52 percent and increase purchase price 19 percent.

The ORNL-developed computer model is sufficiently flexible to handle different refrigerator sizes, configurations (e.g., top-freezer), and operating environments (e.g., room temperature, food loads, number of door openings).

Environmental scientists promoted

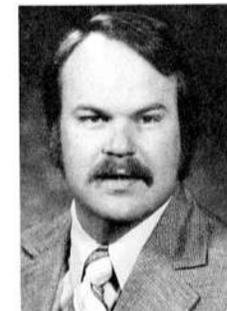
The promotion of four staff members in ORNL's Environmental Sciences Division has been announced by Stanley I. Auerbach, division director. Robert W. Brocksen was named section head for Aquatic Ecology; Roger L. Kroodsma is manager of the Ecological Analyses and Applications Program (EAAP); and Robert B. Craig and Stephen G. Hildebrand were appointed group leaders in the EAAP.



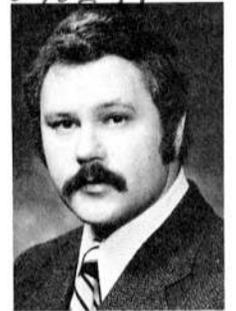
Brocksen



Kroodsma



Craig



Hildebrand

Brocksen

As head of the Aquatic Ecology Section, Brocksen will have responsibility for both basic and applied programs, and will be responsible for aquatic contributions to multidisciplinary research efforts both within and outside of the Environmental Sciences Division.

Brocksen attended Oregon State University where he received a bachelor's degree in fisheries, an M.S. in toxicology/fisheries, and his doctorate in physiology and limnology. He joined the ORNL staff in 1975 as manager for the Division's Ecological Analyses and Applications Program.

Kroodsma

Kroodsma succeeds Brocksen as head of the EAAP, and will be responsible for the development and preparation of ecological and related environmental assessments for the Nuclear Regulatory Commission and ERDA.

He joined the Environmental Sciences Division staff in 1974, after receiving his bachelor's degree in biology from Hope College, and his M.S. and Ph.D. degrees in zoology from North Dakota State University.

Kroodsma was involved in the preparation of environmental statements on nuclear power plants for NRC, and was an EAAP task group leader prior to his recent appointment.

Craig and Hildebrand will be responsible for the coordination of the

nuclear and non-nuclear assessment activities within the Ecological Analyses and Applications Program, and will report to Kroodsma.

Craig

Craig, a native of Washington, D.C., joined the ORNL staff in 1974. He has B.S. and M.S. degrees in zoology and a doctorate degree in ecology from the University of California at Davis. In his new position, he will deal with ecological consequences related to geothermal energy, coal conversion, uranium enrichment and other expanding technologies.

Hildebrand

Hildebrand received his bachelor's degree in zoology and chemistry from Wabash College, and M.S. and Ph.D. degrees in fisheries from the University of Michigan. He has worked in the general area of aquatic ecology and effects of energy technology development on aquatic systems since joining the staff in 1973.

patents granted

To Cressie E. Holcombe Jr. and John G. Banker, both of Y-12, for "Coating Method for Graphite."

To Donald M. Richardson and Carlos E. Bamberger of ORNL for "Process for Thermochemically Producing Hydrogen."

To Cleland H. Johnson of ORNL for "Electrostatic Lens to Focus an Ion Beam to Uniform Density."

Outputs from the model are used as inputs to a detailed engineering-economic model of energy use previously developed at ORNL, which estimates distribution of new residential equipment each year (from 1970 to 2000) as a function of fuel prices, consumer demand, and the technological characteristics of each type of equipment.

The report, ORNL/CON-6, is available for \$4.50 (\$3 in microfiche) from: National Technical Information Service, U.S. Department of Commerce, Springfield, Va. 22161.

Joins Public Relations staff

Karen L. Cromer has joined the Nuclear Division's Public Relations Department staff as associate editor of the **Nuclear Division News**, with the responsibility of news gathering at the Laboratory. She is also coordinator of the visitors' tour program.

Cromer comes to the Nuclear Division from the University of Tennessee, Knoxville, where she graduated in December, 1976,

with a B.S. in public relations. At UT she was secretary of the Public Relations Student Society of America and holder of the Hearst and Bickel scholarships. She was also active in Mortar Board, Inc., Undergraduate Alumni Council and Scarabbean Senior Society.

Having lived most of her life in Tennessee, Cromer now makes her home in West Knoxville.

safety scoreboard

Time worked without a lost-time accident through February 24:	
Paducah	8 Days 94,400 Man-Hours
ORGDP	52 Days 1,642,330 Man-Hours
Y-12 Plant	9 Days 231,000 Man-Hours
ORNL	161 Days 3,208,000 Man-Hours

question box

If you have questions on company policy, write the Editor, Nuclear Division News (or telephone your question in, either to the editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.

Microwave privileges

QUESTION: In our building at ORNL there is a microwave oven that belongs to another division. Members of our division used to be able to use it, but were recently told they no longer could. There are only four people using it now. My question is, can they do this?

ANSWER: There are a number of microwave ovens located at ORNL in various lunchrooms, coffee rooms, snack shops, etc., for employees who are unable or who do not desire to go to the cafeteria for lunch. These ovens are intended to be used primarily for warming sandwiches, doughnuts, pies, etc., which require only a very short time, and are not intended to be used for cooking full-course meals.

Some of these microwave ovens have been purchased by various ORNL divisions with divisional funds. The remaining ovens belong to the ORNL Food Service Department or to Industrial Vendors, an outside vendor. All microwave ovens at ORNL are for the use of ORNL employees and should not be restricted exclusively to a particular division, even when purchased by that division.

Apparently, the incident you refer to resulted from a misunderstanding. In at least one location, employees were recently asked not to use the microwave oven for baking potatoes, cooking casseroles, etc. Such use ties up the ovens for too long and requires unnecessary waiting by others who merely want to warm sandwiches. There was no intention to deny any employee the right to share in the use of this microwave oven.

Recognizing CPS's

QUESTION: Why does Union Carbide not recognize Certified Professional Secretaries as professionals? They should be granted not only monetary awards for accomplishing this certification, but also jobs in which they could best serve Carbide's interest. CPS recipients in other companies and at schools and universities are utilized as office managers, instructors, administrative assistants, etc. Do we strive for betterment only for self-fulfillment, or does Carbide really want its employees to better themselves in order to receive higher level jobs and pay?

ANSWER: There have been several CPS recipients who have been promoted to jobs in other career fields. Other CPS recipients have achieved higher level secretarial positions and correspondingly higher salaries. These promotions have resulted from the employee's increased knowledge and efficiency, not merely from obtaining a CPS certification.

One's educational background is certainly an important consideration

when his/her potential for advancement is assessed. Because of this, we certainly encourage our employees to upgrade their educational background. Our University Study and Educational Assistance Programs are designed specifically for this purpose.

However, merely because an employee upgrades career skills does not necessarily immediately increase his/her worth to the Company. It is only when these additional skills are put to use in more responsible job assignments that the value of the training is seen.

Personal time off

QUESTION: An employee in my building goes to town for lunch or to take care of business every day. This employee has built two houses on company time and has been gone from the office for countless hours. This has been going on for years. Is this legitimate personal leave time?

ANSWER: A normal workday consists of eight hours of work within a payroll day performed during a period specified by the installation head. Each supervisor is responsible for acquainting all employees under his/her supervision with the established rules and regulations pertaining to hours of work and seeing that such rules and regulations are enforced.

In connection with personal time off, it is company policy to excuse an employee from work for extenuating personal circumstances, such as death or serious illness in the immediate family, appearance in court as a witness, or any other circumstances which, in the opinion of the installation head or designated representative, warrant an excused absence. Building a house does not meet any of the requirements listed above; consequently, personal leave should not be allowed for this activity.

We appreciate and share your concern in this matter and suggest that you discuss the specifics with your division director or superintendent who will see that proper steps are taken to rectify any improprieties.

Fixed income fund

QUESTION: The latest unit value in the Fixed Income Fund of the Savings Plan was listed at \$12.8706, as compared to \$10.0000 in 1973. Does this not give a recent subscriber an advantage over those of us who have been in the plan since its inception?

ANSWER: No, because the new participant is coming into the Fixed Fund at the same level of unit value as the current cash value of the present participant's unit. A unit purchased at \$10.0000 at the start of the Plan had a cash value of \$12.8706 in October 1976. New units purchased in Oc-

(Please see page 8)

10 promotions told at Y-12 Plant

Ten recent promotions are announced in the Y-12 Plant. E. Wayne Arrington has been named a supervisory trainee in the Product Certification Division. Philip S. Ashburn is a new senior engineering assistant in the Maintenance Division; James C. Duff and William C. Fraley machinist foremen in Fabrication; J. C. Haskins a senior engineering assistant in Maintenance; and Burrel E. Henry a materials supervisor in Materials and Services. George D. Manley is a supervisory trainee in Product Certification; Wilbert D. Minter a records management and micrographic supervisor in Materials and Services; Kenneth R. Rains an inspection supervisor in Product Certification; and Jack E. Stokes a materials dispatcher foreman in Production Engineering and Scheduling.

Arrington, a native of Newport, attended Carson-Newman College and has been with Union Carbide since 1958. He worked with Oak Ridge Motors prior to coming to Y-12.

He and his wife, the former Barbara Arnett, live at Route 6, Clinton. They have seven children, Ed, Jeff, Kim, Annie, Jerry, Don and Rane. They have two sons, Scott and Darek.

Ashburn, who was born in Detroit, is a veteran of the U.S. Air Force. He worked with the Arnold Engineering Development Center before joining Union Carbide in 1967. He attended Middle Tennessee State University.

Mrs. Ashburn is the former Mary Paul, and they live at 109 Sanford Lane. They have two sons, Scott and Darek.

Duff, a native of Lenoir City, has been with Union Carbide for 25 years. He worked in ORGDP until 1961, when he transferred to Y-12.

He and his wife, the former Bobbie Chamberlain, live at Route 2, Lenoir City. They have two children, Jannie Hines and Alan.

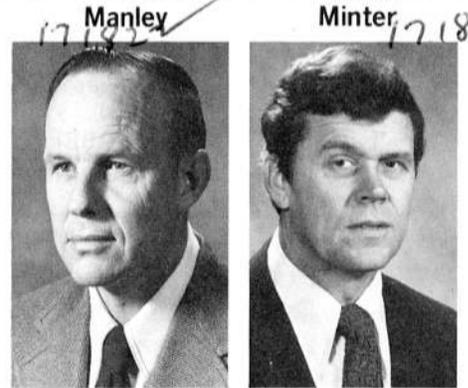
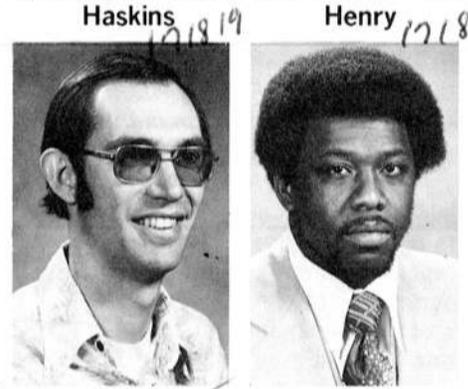
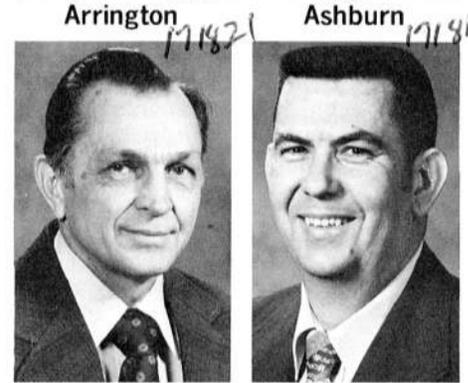
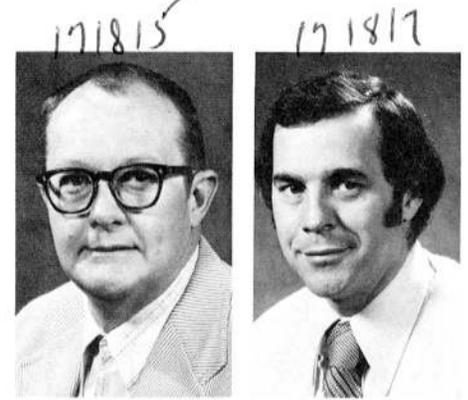
Fraley, a native of East Stone Gap, Va., has been with Union Carbide 22 years. Prior to that he was with Pet Dairy and the Fleet Oil Company. He worked as a stockkeeper, and most recently was a teacher/foreman in the Training and Technology Project. He attended Lincoln Memorial University and holds a B.S. in industrial education from the University of Tennessee.

His wife, Jean, is in ORNL's Plant and Equipment Division. They live at Route 22, Beaver Ridge Road, Knoxville. Their daughter Elizabeth is employed in the Office of Waste Isolation. They also have two sons, David and William.

Haskins was born in Shelbyville, and joined Union Carbide in 1970, after working with ARO, Inc., and the Eureka Pants Manufacturing Company. He attended the University of Tennessee at Martin and ARO's Electronic Technology School.

He and his wife, the former Margaret Roysden, live at Route 3, Kingston. They have three children, Debra, Donna and Whitney.

Henry, a native of Knoxville, attended the Naval Air Technical Training Command school and UT ex-



tension. He joined Union Carbide 23 years ago, after working with radio stations WHBT, WATO and WOKE.

Mrs. Henry is the former Shirley McGuffin, and they live at 105 Baltimore Drive, Oak Ridge. They have a daughter, Cheryl.

Manley was born in Bristol, Va., and attended the University of Tennessee and Knoxville Business College. He was employed at the Square Supply Company before joining Union Carbide in 1967.

He and his wife, the former Geraldine Childress, live at 8205 Mountain Creek Lane, Knoxville. They have two daughters, Donna and Dana.

(Please see page 8)



Circus tickets at discount again available to employees

It's called the Greatest Show on Earth, and special discount days are again offered to Union Carbide employees. More than 2,500 discount tickets were purchased last year by employees for their families.

The Big Top will return to the Knoxville Civic Coliseum, and special discount days are: Wednesday, March 23 (both the 4:15 p.m. and 8:15 p.m. performances); Thursday and Friday, March 24 and 25 (afternoon matinees only). A total discount of \$1.50 on the top two ticket prices (\$6 and \$5) is offered.

The theme of this year's Ringling Brothers Barnum and Bailey circus is "200 Years of Circus in America," tracing many elements of history that have left their mark on the entertainment and cultural scene. More than 300 performers and 200 animals will participate in the gala. For the first time in almost 30 years, polar bears will be a part of the act. These animals are the most feared of all by trainers and fellow workers alike.

Featured also will be 15 royal Bengal cats, along with aerial acts to dazzle the mind. Horse acts include Russian Cossack riders filling three rings simultaneously. There will also be a stable of lipizzan stallions in a series of military drills.

The "elephant extravaganza" will salute the U.S.A. as the "land of the free" and the "home of the brave" in song and scene.

The King Charles Troupe will again play basketball on unicycles to the delight of the crowd.

Union Carbide employees, to take advantage of the discount prices, should use the ticket application below. DO NOT MAIL TO THIS OFFICE. The applications, plus check or money order, is mailed directly to the Circus at the Knoxville Civic Coliseum.

All orders must be postmarked before Saturday, March 12. Please enclose a stamped, self-addressed envelope with each order.

Cuttings set next weekend

Another public firewood cutting is planned for Friday and Saturday, March 11 and 12, at the Oak Ridge reservation. Low-grade hardwood trees and some treetops and limbs from logging operations will be available, as in the past, for each family or individual purchasing a \$5 permit. The fee is used to defray costs of personnel needed to monitor the cuttings.

Interested participants should meet Friday or Saturday at the intersection of the Oak Ridge Turnpike and Highway 58 (the "Y" near ORGDP) between 8 and 9:30 a.m. and should bring cutting equipment. Members of the staff of the Forest Management Program will accompany groups to designated cutting areas.

Persons cutting trees outside designated areas will have their permits revoked and will be asked to leave the cutting area according to Dennis Bradburn, supervisor of the cuttings.

The cuttings will end promptly at 4 p.m. each day, and road access will be provided for private vehicles to remove cut firewood. Due to safety regulations, children under 12 will not be permitted in the cutting area.

For additional information, call Bradburn at extension 3-1266.

St. Pat's dance

The 27th Annual St. Patrick's Day Dance for the Chemical Technology Division will be held on Friday, March 18, at the St. George Greek Orthodox Social Hall in Knoxville.

The festivities start at 8 p.m. with a social hour, followed by dancing from 9 p.m. to 1 a.m. Music will be provided by the White Brothers Band. Entertainment will also be furnished during intermission.

Tickets are on sale now at \$5 per person, which includes refreshments. Seating is limited, so please make your reservations early by contacting Rita Camp, 3-7151. Members and guests of the Chem Tech Division are cordially invited to attend this dance.

UNION CARBIDE CORPORATION CIRCUS DISCOUNT TICKETS

Mail to:

Ringling Bros., Barnum & Bailey Circus
Knoxville Civic Coliseum
P.O. Box 2603
Knoxville, Tennessee 37901

Prices: \$6 \$5
Deduct \$1.50 for each ticket



Number of tickets _____ ea. \$ _____
(Please indicate 1st and 2nd choices)

Wed., Mar. 23 - 4:15 p.m. _____; 8:15 p.m. _____
Thurs., Mar. 24 - 4:15 p.m. _____ 8:15 p.m. _____
Fri., Mar. 25 - 4:15 p.m. _____

Name _____

Address _____

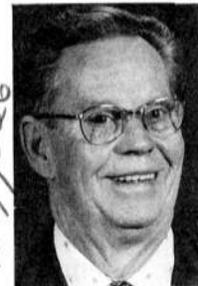
Day telephone _____

Do not mail cash. Make check or money order payable to Ringling Bros. Circus. Please enclose stamped self-addressed envelope for return of tickets.

retirements



Shelton D. Cline
Plant and Equipment
ORNL
24 years service



William W. Ballard
Y-12
Dimensional Inspection
24 years service



Frank A. Ferrari
ORGDP Engineering
24 years service



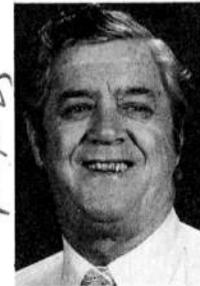
Coyal Fuqua
Y-12
Process Maintenance
25 years service



Henry Jones
Y-12
Buildings and Grounds
33 years service



Eva E. Elmore
ORGDP Maintenance
Engineering
32 years service



James D. Bomar
Y-12 Beta 4 Forming
31 years service



Clarence W. Fox
Operations, ORNL
20 years service



Controlled burnings used to prevent spread of wildfires

Many Nuclear Division employees have observed fires burning on the Oak Ridge reservation this winter. Some employees have even stopped their cars and offered assistance in putting out what they thought were wildfires, according to Dennis M. Bradburn, Environmental Sciences Division at ORNL.

The fires are part of controlled burning activities which are administered by the Forest Management Program under Bradburn's direction.

Although controlled burning is not a new activity, it has not been conducted on the reservation since 1973. In addition to serving as a tool in the management of pine plantations, controlled burning reduces the volume of fuel, mostly pine straw, honeysuckle and tree parts, that could make a wildfire very difficult, if not impossible to control.

Enhances wildlife

The burnings also help forest management control the Southern Pine Beetle which has done extensive damage to trees in this area during the past few years. And, according to Bradburn, it enhances wildlife habitat because it increases herbaceous plant growth.

Most loblolly pine plantations on the reservation will be burned this year. Loblolly pine, a valuable pine species which is not native to this area, cannot maintain itself for any length of time without management. It can, however be sustained indefinitely on given sites by controlled burning to reduce the competition of ingrowing har-

dwoods which are usually of lower value.

Additional areas to be burned include the right side of Bethel Valley Road, Highway 95 from Clinch River to Oak Ridge, and Highway 58 from the Y to Gallaher Bridge. These areas will be blocked off into grids by fire lanes.

Conditions for burning

Most of the burning activities will be conducted in the late afternoon and evening, when the air temperature is less than 55°F, relative humidity is less than 75 percent, and proper wind conditions are available. All activities will be conducted by forest management personnel who have been trained in controlled burning techniques.

Equipment used in the activities includes a crawler tractor with a fire plow and two four-wheel drive trucks equipped with high velocity fire pumps, water tanks and other fire fighting equipment.

The Fire Department in the city of Oak Ridge is always alerted to the burnings and will provide backup protection in case of an emergency. Plant protection personnel at the three Nuclear Division facilities and ERDA are also notified when controlled burning activities are planned.

Although environmental effects of controlled burning are considered to be minimal, ORNL has proposed studies to be conducted in conjunction with the University of Tennessee's Department of Forestry to assess specific impacts of the burning on the reservation.

Charles Doty to head Division's Industrial Participation Program

PH77-610

The appointment of Charles D. Doty as manager of the Nuclear Division's Industrial Participation Program has been announced by William J. Wilcox Jr., Technical Director for the Production Plants. In his new position, Doty will have responsibility for directing and administering the transfer of uranium enrichment technology to ERDA's Industrial Participation Program contractors.

Doty, a native of Old Hickory, Tenn., joined the Nuclear Division in 1975 with responsibility for program planning and scheduling activities for the National Uranium Resource Evaluation project.

He attended the University of Tennessee, majoring in chemical engineering, and in 1961 received his B.S. degree in industrial engineering and management from Oklahoma State University. For 23 years he served with the U.S. Air Force, most recently in the area of research and development program management.

Doty is a member of the American Institute of Industrial Engineering and the Research and Scientific Society of America. He and his wife, the former



Charles D. Doty

Norma Hicks, have two sons, Charles Jr. and Linden; they live in the Belmont West subdivision in Knoxville.

Joe Sherrod named ORGDP materials department head



Joe D. Sherrod

Joe D. Sherrod has been named Materials Department Head in the Finance, Materials and Services Division at ORGDP. He replaces Michael R. Bradshaw, who recently transferred to the Y-12 Plant.

Sherrod, a native of Knoxville, joined Union Carbide 19 years ago at Y-12. In 1975 he was named division safety officer in the Maintenance Division, and later was promoted to a stores supervisor in Finance and Materials at ORGDP.

Mrs. Sherrod is the former Karen Reynolds, and they live at 131 Nebraska Avenue, Oak Ridge. They have two sons, Scott and Brett; and a daughter, Brouke.

Savings Plan-Personal Investment Account

Recent unit values:

	Fixed Income Fund	UCC Stock	Equity Investment Fund
August 73	10.0000	34.7688	10.0000
December 73	10.2444	31.8170	9.3602
December 74	11.0438	40.3009	6.4354
December 75	11.9880	58.7886	7.8231
November 76	12.9621	57.6422	8.4938
December 76	13.0554	59.2723	8.8167
January 77	13.1474	58.7847	8.1945

Note: Fixed Income Fund unit values reflect interest additions to achieve the guaranteed effective annual interest rate of 8.85% for 1976 and 8.70% for 1977. Union Carbide stock values are the average cost of stock purchases during the month plus brokerage charges. Equity Investment Fund unit values represent the month-end market value of securities held by the Fund. Dividing the total value by the number of units in the fund establishes the month's unit values—and the price at which new units are added that month.

wanted



ORGDP

TWO RIDERS from Cumberland Estates area, Knoxville, to Portal 4, straight day. Charles L. Summers, home phone Knoxville 584-6567.

RIDE from Waddell Circle, Oak Ridge, to Administrative area, ORGDP, straight day. Dolores Getsi, plant phone 3-3433, home phone Oak Ridge 483-9848.

RIDE or will join car pool (have small car) from Rallery Apartments, Lonas Drive, Knoxville, to Administrative area, straight day. Ernie Kemp, plant phone 3-3433, home phone Knoxville 588-3781.

ORNL

CAR POOL MEMBER from East Knoxville area, to any portal straight day. D.A. Treadway, plant phone 3-1851, home phone Knoxville 637-3164.

ORNL

RIDERS wanted for van pool from Beaver Creek, Karns, Solway areas, also vicinity of Emory Road, straight day, any portal. Gary Wright, plant phone 3-6441, home phone Knoxville 947-0241.

RIDE from Forest Park Boulevard, Bearden area, to West Portal. Alice Montgomery, plant phone 3-1257.

CAR POOL MEMBERS from West Town Mall area to any portal, 8:15-4:45. C. Travis, plant phone 3-6570.

CAR POOL MEMBERS from areas of West Outer, Waddell, Pennsylvania or Hillside, Oak Ridge, to East Portal, 8:15 to 4:30. Tom Burnett, plant phone 3-6939, home phone 483-1975.

RIDE WANTED from Harriman to Portal 2 or 3, straight days. Call extension 3-3053, or home 882-2831.



NUCLEAR LEADERS — The Skinks share the top rung in the Nuclear League of volleyballers. In the front row from left, are Jim Mack, Bill Elliott and Sy Cook. In the rear are Joe Carpenter, Dave Stinton, Bob Suchomel and Ron Swain. Not pictured are Debbie Elliott and Lisa Stinton.



MAXWELL DEMONS — Another Nuclear League team in the volleyball class is the Maxwell Demons. In the front row from left, are Jim Condon, Jim Allen, Dennis Grooms and Kent Williams. In the rear are Joe Shonka, Karl Gerth, Bob Keller, Ed Kenik and Tom Adams. Not seen are Steve Blum, Greg Ray and Lynn Degenhardt.



CARBON TEAM—The Half a Chance is one of the sterling teams in the Carbon Volleyball League. They are, from left: in the front row, Candice Strickler, Nancy Dailey, Rose Weaver and Carole Shriner. In the back row are Jeff McKenna, Brad Whitfield, George Daily, Eric Lewis and Dave Shriner.

Volleyball leagues . . .

A tie has resulted in the Nuclear League as volleyballers get down to action again after delays because of the weather, as the Blue Team and Skinks have a won-loss record the same. The Taxi Squad leads the Atomic League and the Gauss House Gang leads the Carbon League.

League standings follow:

NUCLEAR LEAGUE		
	W	L
Blue Team	33	9
The Skinks	33	9
Over-the-Hill Gang	31	11
Rad-Fizz	30	12
Pogo's	29	13
Artie's Army	26	16
Maxwell Demons	19	23
Ball Busters	17	25
C-Shift Reds	15	27
FED's	7	35
The Abends	7	35
The Kilos	5	34

ATOMIC LEAGUE		
Taxi Squad	36	6
Diggers No. 2	31	11
Diggers No. 1	30	12
Quarks	15	27
Ecomen	8	34
Old Men	6	36

CARBON LEAGUE		
Gauss House Gang	27	6
Volares	24	9
Group	16	17
Half-a-Chance	11	25
Killer Bees	6	27

Hi power rifle . . .

The Carbide High Power Rifle Tournament is scheduled to start in early April and will run through July. The schedule is as follows: April 2, April 30, May 14, June 4, June 25 and July 16. Shooting starts promptly at 9 a.m., and competitors should report to the 200 yard line no later than 8:30 a.m. These matches will be held at the Oak Ridge Sportsman Association. All Carbide employees are eligible to participate in the tournament. Contact the Recreation Department, 3-5833, for additional details.

New bowling league . . .

The Recreation Department is interested in forming a mixed bowling league at Western Plaza Bowling Lanes, Knoxville. Plans are to start this league in April or May. Anyone interested should contact the Recreation Office, extension 3-5833, before March 25.

ORNL bowling . . .

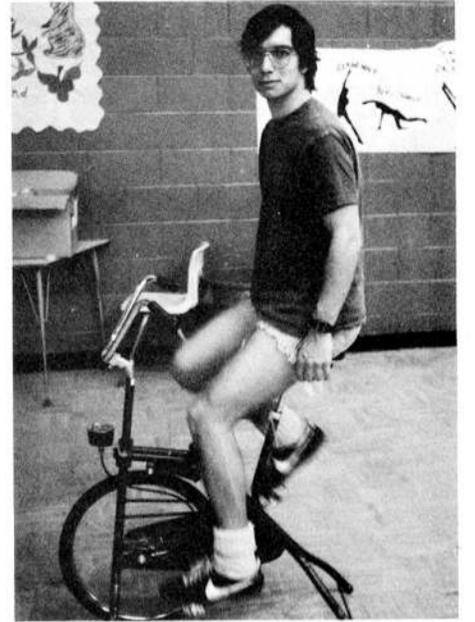
The Bowling Clubs grab the lead from the Mousechasers as the ORNL Ladies League rolls well into the season's second half. In a make-up session, Elizabeth Phipps rolled a 508 series, pushed to a 613 handicap tally.

The Alley Rads pull out in front of the C League, eight and one-half points ahead of the Knuckleheads. The Damagers' Johnson rolled a 657 series in mid-February.

Y-12 bowling . . .

The Cubs pulled away in the Classic League recently, to top the Playboys by one point. David Foster's 610 scratch, 700 handicap series scored high recently. Ray Winnie's single of 252 is high also.

The Friskies keep a one-point lead in the Y-12 Mixed Bowling League, ahead of the Hits & Misses.



NO HANDS—A Union Carbide employee uses some of the equipment available at the Physical Fitness Program held by the Recreation Department.

ORGDP bowling . . .

Alice Guffey set the lanes afire recently in the ORGDP Women's League, rolling games of 248, 220 and 207 . . . for a series of 675, the season's high! The Uptowners still hold down first slot.

The Hi-Rollers and Demons are tied for the lead in the Wednesday League. Larry Woods topped the bowlers recently, with a high single of 277.

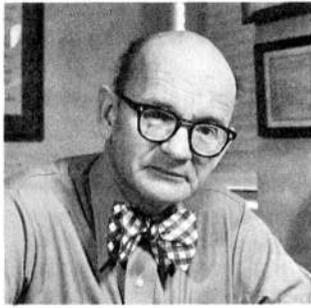
The All Steers keep first place in the Tuesday League, as J.K. Phillips hit a 660 scratch series recently, a 735 handicap total!

Carbide bowling . . .

The Oops team and the Quetzecautles are tied for first place in the Carbide Family Mixed League. Till Plaza and Del Ducay earned plaudits in mid-February with high series.

Easy come,
easy grow.

Take stock in America.
Buy U.S. Savings Bonds.



medicine chest

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

QUESTION: "What is 'near-sightedness' and 'farsightedness'? Why does it change with age? Can this condition be treated, trained, exercised? Should prescription glasses be worn at all times or will it help keep eyes 'in shape' to not wear glasses at certain times? Is proper lighting necessary or just a convenience? Is too much light damaging to the eyes?"

ANSWER: Before trying to explain what nearsightedness and farsightedness are, I must explain what "accommodation" is. When a person is still young, the lens is an elastic structure which is kept slightly flattened by the suspensory ligament. When one focuses on an object which is nearby, a tiny muscle called the ciliary muscle contracts and relaxes the suspensory ligament, which allows the elastic lens to become more convex. This increased curvature of the lens allows a person to focus on objects which are up close.

Declines with age

Accommodation declines gradually after about age 10, so somewhere between the ages of 40 and 50, most people have difficulty reading small print. This loss of accommodation is inevitable and can only be treated by reading or bifocal glasses.

When a person has myopia, or nearsightedness, he cannot see distant objects clearly. Parallel rays of light reflected from distant objects are brought to a focus in front of the retina rather than precisely on it, as they should be.

In hyperopia or farsightedness, parallel rays of light from distant objects are brought to focus behind the retina. Such a person cannot see either distant or near objects distinctly. When looking at distant objects, he can use his accommodation power to help some, but when he looks at a close object he has to focus even more, and it usually is insufficient. A young person who has perfect vision sees distant objects without effort and near objects with minimal effort.

The ability to voluntarily improve distant vision by muscular effort when myopia exists is minimal, and therefore, glasses or contact lenses are necessary. The basic problems appear to be largely genetic in origin. The length of the eye (the anterior-posterior diameter of the eye), the radius of curvature of the cornea, the thickness and position of the lens in the eye and the refractive properties of the other structures in the eye (called the media) are imperfect.

Myopia and environment

Canadian studies on Eskimos done during the past five to ten years suggest that environment may play a more important role in causing myopia than we realized. In several studies, myopia was four to eight times more frequent in those 15 to 30 years old than in their parents who had no education. Various other studies have documented the low prevalence of myopia among primitive peoples.

Schooling is thought to be a contributing factor. It is possible that the increased amount of close work associated with schooling affects the growth and development of the eye and leads to changes in its shape. The Canadian study could not correlate myopia with height or weight, and therefore improved nutrition didn't seem to be the answer.

Maybe there is something to the old wives' tale that "bookishness" influences the development of myopia in some children. The comment that "bookworms" are not athletic may be due to both a cause and an effect. A genetic lack of vision may cause the reduced interest in athletics, which leads to a greater interest in reading, which makes the myopia worse.

There is no advantage to not wearing glasses in order to make the eyes work harder. Proper lighting leads to less fatigue, but it probably has nothing to do with causing refractive errors. Too much lighting may cause glare, which can cause fatigue. Too much light such as received when looking at the sun, can cause permanent retinal injury.

The amount of light required depends a great deal on what one is doing. If one is playing a game or working at a job where instantaneous recognition of moving objects is required and judgments have to be made as to their direction and speed and then followed by a rapid response, optimum lighting is needed. Most reading can be achieved comfortably with less lighting than most people have learned to expect is necessary. Perhaps the light bulb companies were more successful than they really needed to be. Now that we have to be concerned with energy conservation, we will need to get used to a little less light.

QUESTION: "If a person wearing contact lenses were to become unconscious for some reason and it was not realized that he or she were wearing contacts, what might be the damage to the eyes?"

about people...

131019

Schmitt



Charles R. Schmitt, a member of the Y-12 Development Division, has received notification that he has been evaluated by the International Hazard Control Management Certification Board, Washington, D. C., qualifying him as a Certified Hazard Control Manager. The certification program recognizes those environmental, safety and health professionals whose education, management experience and technical achievements in controlling loss resulting from hazardous environments meet qualification standards.

The Oak Ridge Chapter, Tennessee Society of Professional Engineers, made an award last week to **John W. Hill Jr.** for Outstanding Service, and named **James E. Beavers** Young Engineer of the Year. The awards were made at the Engineers Week luncheon held at Knoxville's Hyatt Regency in conjunction with the annual WATtec Conference.

Hill joined the Nuclear Division in 1948 after receiving a B.S. degree in chemical engineering from the University of Arkansas. He has held positions both at ORNL and at ORGDP, where he is currently engineering program manager for Separation Systems Division projects.

Beavers, who came to the Nuclear Division in 1968, holds a B.S. degree from the University of Missouri at Rolla, and both M.S. and Ph.D. degrees from Vanderbilt University. He has held positions in Engineering as engineering specialist and a consultant to management, primarily concerning the design of facilities for earthquakes and tornadoes.

division deaths

Robert L. Brown, ORGDP Maintenance Department, died February 14, in the Oak Ridge Hospital.

A native of Claxton, Mr. Brown joined Union Carbide in 1974. He was a veteran of the U.S. Army. He lived at 188 Hillside Road, Oak Ridge.

Survivors include his mother, Mrs. Conley C. Wilson; a daughter, Tonya Brown; brothers, Larry, Lawrence and Anthony; sisters, Anna Twitty, Loretta Parton, Mary Wilson and Angel K. Wilson.



Mr. Brown

ANSWER: Contact lenses should never be left in the eyes while sleeping. When they remain on the cornea too long, regardless of the reason, the possibility of corneal abrasions is greatly increased. These abrasions can lead to corneal ulcers, which can be dangerous.

When a hard contact lens is used, the transfer of oxygen to the surface of the cornea and the removal of carbon dioxide by tear fluid is reduced. The cornea can adjust to this, but after many hours of continuous use damage can occur. The new soft contacts allow some gas penetration which helps oxygen transfer, and even hard contact lenses have had tiny holes drilled in them, allowing better bathing of the cornea with tear fluid.

One expense which young people who are contemplating getting contact lenses usually don't consider is the cost of an extra pair of regular glasses to use during rest periods. Many users find they cannot tolerate their contact lenses more than 12-14 hours a day. If they need to study late in the evening, they must use regular glasses.

Funeral services were held at the Haven Chapel United Methodist Church, Claxton, with burial in the Welch Cemetery, Lake City.

Edward J. Witkowski, superintendent in ORNL's Operations Division, died February 15 at his home, 118 Euclid Circle, Oak Ridge. A native of South River, N.J., Mr. Witkowski joined Union Carbide in 1944.

Survivors include his wife, Matylda Larnowicz Witkowski; two sons, Dr. Paul Witkowski, Alamosa, Colo., and Mark Witkowski, Davenport, Iowa; three grandchildren, June, Dan and Sonya Witkowski, Alamosa; five sisters, Mrs. Mame Sary and Mrs. Agnes Subjack, both of South River, Mrs. Helen Kurzawa and Mrs. Florence Pawlowski, both of South Amboy, N.J., and Mrs. Claire Ciso of New Brunswick, N.J.

Funeral services were held at St. Mary's Catholic Church with burial in Anderson Memorial Gardens.

The family has requested that memorials should be made to St. Jude's Children Hospital in Memphis in Mr. Witkowski's name.



Mr. Witkowski

Toastmasters form new club

A new chapter of the Toastmasters Club, a society to improve communication, is being formed in the Rockwood, Kingston, Harriman area. Any interested persons living in this area can join by contacting either Sam Croft at 3-6253 or A. A. Walls at 3-6730.

Other area Toastmasters chapters are in Knoxville and Oak Ridge.

question box

(Continued from page 3)

tober 1976 cost the new participants \$12.8706 each.

In December 1976 the value of the older unit had increased to \$13.0554 and the value of the new unit also had increased to \$13.0554.

As of December 1976 the difference between \$13.0554 and \$10.0000 represents the interest earned since the start of the Plan. The difference between \$13.0554 and \$12.8706 represents the interest earned between October 1976 and December 1976.

Road maintenance

QUESTION: Whose responsibility is it to scrape snow and ice off Bear Creek Road? All the secondary roads I traversed to work on January 24 and 25 were treated and scraped except that one. It seems that ERDA, who gives snow days off to its employees, could at least get the roads scraped for those of us contractor employees who have to work.

ANSWER: Bear Creek Road is under the jurisdiction of the Energy Research and Development Administration. Maintenance responsibilities have been assigned to the Rust Engineering Company.

On January 24 and 25 there was insufficient salt available for application on all roads maintained by Rust. The following day salt was received and applied to Bear Creek Road.

Carry-over vacation

QUESTION: Why can't an employee carry a portion of his vacation into the next year before attaining 25 years' company service, rather than have the rush at the end of the year for those with vacation remaining? I always retain at least one week of my vacation until the end of the year, since it might be necessary to have some time off in case of emergencies.

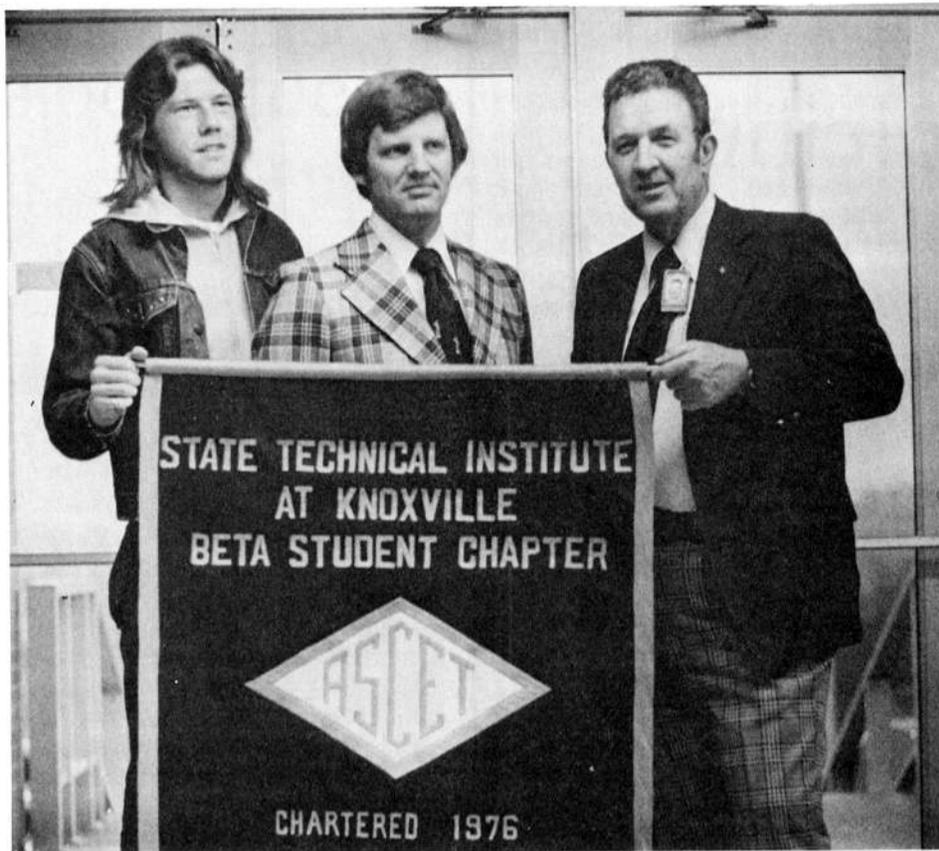
ANSWER: Vacations are granted primarily to provide employees with time off for relaxation and/or rest. To the extent that vacation time is "carried over" this, to some extent defeats this primary purpose. However, the "carry over" privilege at 25 years occurs when the employee has five weeks of vacation which allows for a reasonable amount of time off even with the "carry over."

Most companies insist that vacations be taken each year or forfeited. In that respect UCC's policy of permitting employees with 25 years of service an opportunity to "carry over" some vacation is more liberal than most.

Nevertheless, your suggestion would have appeal to many employees. It will be considered when Union Carbide next reviews its benefit plans package.

next issue ...

The next issue will be dated March 17. The deadline is March 9.



STUDENT CHAPTER CHARTERED—Joe Mynatt, left, president of the Student Beta Chapter, and Wayne Jones, center, president of State Technical Institute at Knoxville, accept a banner presented to them by the Oak Ridge/Knoxville Chapter of the American Society of Certified Engineering Technicians (ASCET). Don Spangler, center, local ASCET president, presents the award. Spangler also works in the Chem Tech Division at Carbide. Chartered in 1976, the Student Beta Chapter has grown to 57 students in less than one year.

anniversaries

PADUCAH

25 YEARS

Robert J. Elliott, Francis D. Kidd, Eugene R. Ragland, Paul Strickland, Joe R. Houston, Charles M. Daniels, William D. Greer, Henry G. Dunning, Crait Parr, Howard L. Day and Phillip B. King.

ORGDP

35 YEARS



J. J. Schariter

John J. Schariter, Production Barrier Development Department, observes his 35th anniversary with Union Carbide March 15. He joined the SAM Laboratories in 1942 and transferred to Oak Ridge in May, 1945. A native of New York City, he and his wife, Dorothy, live at 208 Kelsay Drive, Kingston. They have three children, Joseph, Christy and Heidi.

30 YEARS

Morgan E. Thomas and William R. Johnston, Isotope Analysis Department; Donald W. Burton, Gaseous Diffusion Development Division; and Charles M. Taylor, Central Reproduction Services.

25 YEARS

Mary J. Foley, John J. Keyes Jr., Anthony I. Krakoviak, Emerson J. Moore, Horace H. Sullivan, Ralph P. Drake Jr., and Rodney K. Reinert.

20 YEARS
George Drevik.

Y-12 PLANT

30 YEARS

Dewey Stevens and Harvey L. Cox, Utilities Administration.

25 YEARS

Watson H. Roberts, Harley H. Buckner, George E. Dabney, Lorin M. Steckel, Abram Gosen, Albert J. Taylor, Early H. Barton, Sam H. Davis, Jimmy B. Moneymaker and Bert O. Davis.

20 YEARS

Ben A. Easterday, Adrian L. Prestwood, Mildred E. Kasten and Hubert G. Overton Jr.

Promotions at Y-12

(Continued from page 5)

Minter was born in Knoxville and attended Knoxville College. He joined Union Carbide in 1966, and is presently attending the University of Tennessee. He is a member of the Tennessee Association of Human Rights Workers, the Community Relations Council and the Association of Records Managers and Administrators.

He and his wife, the former Ruby Hardy, live at 132 Placer Lane, Oak Ridge. They have a son, Douglas.

Raines was born in Fork Mountain and was employed with the Hartford Steam Boiler Inspection and Insurance Company prior to joining Union Carbide almost 10 years ago.

He and his wife, the former Jean Morgan, live at Route 1, Wartburg. They have two sons, Kenneth Jr. and Ronald.

Stokes was born in West Frankfort, Ill., and has a B.S. degree from East Tennessee State University and an M.S. from the University of Tennessee. He joined Union Carbide in 1970, after teaching at Young High School in Knoxville.

Mrs. Stokes is the former Cora Smith, and they have four sons, Bryan, Perry, Chris and Lanny. They live at Route 1, Old Hickory Estates, Lenoir City.

Nuclear Division News

UNION CARBIDE CORPORATION
NUCLEAR DIVISION
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Oak Ridge, Tenn. 37830

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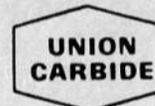
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PADUCAH

Keith Bryant, Bell 369



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