

Nuclear Division News



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

Vol. 8, No. 1/January 6, 1977

Affel to direct security, safeguards for four plants

The appointment of Robert G. Affel as Director of Safeguards and Security for the Nuclear Division, Union Carbide Corporation, has been announced by Roger F. Hibbs, Division President.

In his new position, Affel will be responsible for the coordination of the physical security efforts at the four facilities Union Carbide operates for the Energy Research and Development Administration. In addition, he will have the responsibility for the prime coordination of safeguards efforts. He will report to Charles J. Parks, Vice President for Operations.

Affel, who has been Manager of Plant Protection at the Oak Ridge National Laboratory, has been a member of the Union Carbide staff in Oak Ridge for more than 25 years.

He was graduated from the University of Tennessee in 1951 with a degree in electrical engineering, following which he joined the staff of Oak Ridge National Laboratory. Initially, he worked in the field of electrical engineering in the Instrumentation and Controls Division. He was responsible for work in the design and development of unique instrumentation used in connection with high temperature nuclear reactors. He also worked on the Molten Salt Reactor Experiment and was the engineer in charge of instrumentation



Robert G. Affel

for the Aircraft Nuclear Propulsion Project. He was later made responsible for safety of ORNL's reactors and critical experiments facility.

For the last several years, he has been engaged in the field of special safeguards of nuclear materials.

He is a senior member of the Institute of Electrical and Electronics Engineers, and a member of the American Association for the Advancement of Science.

Affel, who lives in Oak Ridge, has two children, Susan Swinny and Robert G. Affel Jr.

1977 holidays give us long week-ends

The nine holidays in 1977 will provide all Nuclear Division employees with long week-ends.

Following is a schedule of holidays:

Holiday
Presidents' birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving
Christmas Eve
Christmas Day

Only a level of work force necessary to assure continuous operations and plant protection will be required on these holidays.

Basic hospitalization plan changes effective January 1

Improvements in the Basic Hospitalization Plans, to be effective January 1, 1977, have been announced to salaried employees and, subject to ratification of agreements signed later by unions, will apply to hourly employees as well.

The following improvements are being made: (1) The surgical schedule maximum is being increased from \$600 to \$750. (2) The allowance for a doctor's charge for hospital visits is being increased from \$7 per day for 70 days to \$9 per day for 180 days (120 days for Paducah employees) for each period of hospital confinement.

Even before these improvements, the Basic Plan paid from 85% to 90% of all hospitalization charges, including surgeons and other doctors' fees, according to Company spokesmen.

Numerous improvements made

Numerous improvements have been made in the Basic Hospitalization Plan during the past several years. Among these improvements was the change on August 1, 1972, from a flat dollar per day allowance for hospital room charges to the present full payment for a semiprivate room. At that time the Plan paid \$40 per day against hospital room charges. At the present time the average semiprivate room charge, which is paid in full by the

Plan, is \$64 per day, an increase of 60%.

During this same period, that is, from August, 1972, to the present, the cost of Basic Hospitalization Insurance, all of which is paid by the Company, has almost doubled. The average cost for family coverage in 1972 was approximately \$30 per month (\$360 per year) whereas the present cost is approximately \$60 per month (\$720 per year). These costs do not include the premiums for Major or Special Medical Expense coverage, the cost of which is shared by the Company and employees.

Major/Special Medical Premiums

During the past several years, charges for medical services provided by hospitals, doctors, technicians, druggists, etc., have been increasing at a more rapid pace than other expenses. To offset these rising costs, it has been necessary for Blue Cross/Blue Shield, which provides Major Medical Expense coverage for Oak Ridge salaried employees, and Union Mutual, which provides Special Medical Expense coverage for Oak Ridge hourly employees, to increase their premiums effective January 1, 1977. Both of these increases reflect increased payments made on behalf of employees and are required to cover anticipated costs during the coming year.

The old and new monthly payments to be paid by employees are given below:

	From	To
Oak Ridge Salaried		
Employee only	\$2.31	\$3.24
Employee with family coverage	6.70	9.38
Oak Ridge Hourly		
Employee only	\$1.61	\$2.28
Employee with family coverage	4.19	5.95

Since the cost of Major or Special Medical premiums is shared on a 50/50 basis, the Company's share of the premium will also be increased by the same amount. Increased payroll deductions will be made from paychecks for the week ending January 2, 1977, for weekly employees and from the January checks for monthly-paid employees.

No change at Paducah

There will be no change in premiums paid by either salaried or hourly employees at Paducah at the present time.

inside ...

ORNL researchers have developed a technique which will enable them for the first time to detect and identify single atoms of various elements—an achievement which may yield a more sensitive method for identifying and measuring chemical pollutants in the environment. Story is on page 4.

Other features in this issue:

- Supplementary Insurance rates reduced page 3
- ORNL, ORGDP Staff changes..... page 5
- Christmas parties page 6
- Dr. Lincoln..... page 7

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LEARN HEALTH PHYSICS PRINCIPLES—Three Nuclear Division staff members were among 12 ERDA and ERDA contractor employees who participated in an introductory course in health physics at Oak Ridge Associated Universities in December. Shown studying instrumentation are Laura Rosela Quintana and Charles Clark (seated), ORNL Health Physics Division; and Ray D. Foley (standing, right), ORGDP Laboratory Division. The 100-hour course, presented by ORAU's Special Training Division, emphasized introductory concepts of health physics, radiation hazard evaluation, and radiation protection principles and practices.

Where there's a will . . .

Someone once said that if you have nothing but your hat and an old dog named Tray, you should still have a will.

Financial advisors don't go quite that far, but they do say with even a small estate and limited possessions, everyone should write a will.

If there is no will and there are minor children, the court may have to appoint a separate guardian for each child — and the estate would foot the bill, reducing the amount the children receive.

A will doesn't have to be complicated, but a simple one should be drawn up by a lawyer to make sure it will stand up legally in court. As a rule, the legal fee isn't high, and it's well-spent money to help assure that your wishes will be carried out.

For example, death taxes may be higher. And the widow, or widower, and heirs, if any, may not receive what they would had there been a will. Your property may not be disposed of the way you want, but according to the laws of the state you live in, and these vary from state to state.

Yet it has been estimated that half of all Americans who own property die without having made a will. And when a person dies intestate (without a will), from a pure dollars-and-cents viewpoint, there can be many complications.

Carbide bowling . . .

Oops still are on top in the Carbide Family Mixed League, as Al Kerr and Edith Duckworth again proved stars for the day.

Paducah goose hunt . . .

The Recreation Department at Paducah recently sponsored a goose hunt with some 30 lucky hunters being drawn for the Fin 'n Feather headquarters at the Renfrow Huntil Ranch. A total of 10 fat honkers and one mallard was bagged . . . with another three in the possibility realm.

Other hunts were held in December and another one is set January 19.

retirements

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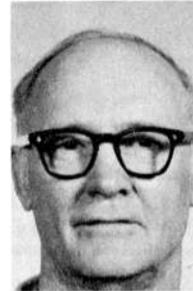
George E. Bullock
Security, ORGDP
32 years service



Steven Woods
Barrier Manufacturing,
ORGDP
31 years service



Moss C. Brown
Laboratory Protection,
ORNL
30 years service



J. E. Alderice
Maintenance,
Paducah
25 years service



Fred J. Allen
Chemical, Power
Utilities, Paducah
25 years service



S. C. "Jack" Allen
Maintenance,
Paducah
25 years service

Also: Robert M. Freestone, Jr.
Neutron Physics, ORNL
24 years service

Martha W. Gerrard
Information, ORNL
26 years service

Hugh A. Maccoll
Engineering Technology, ORNL
22 years service

Lois M. Morris
Information, ORNL
22 years service

Grace B. Desimone
Computer Sciences, ORNL
28 years service

CAULKING SEALS SMALL LEAKS FOR WINTER WARMTH

The easiest way to fill cracks around windows, door frames and chimneys is with caulking. First clean away any grease, dirt or old caulking. Do this work early in the season or on a warm day, as the temperature must be above 45 degrees.

The best caulking is the latex type. It isn't too expensive and the seal will last five years or more. Small cracks can be filled with "cord" caulking.

Union Carbide announces pollution control bonds

Union Carbide Corporation has announced the proposed offering of \$12 million in 30-year pollution control revenue bonds to be issued by the State of Ohio through the Ohio Water Development Authority. The bonds will finance pollution control facilities at ferroalloy plants in Ashtabula and Marietta, Ohio.

The bonds will mature on January 15, 2007. The issue is to be underwritten by a nationwide group of underwriters headed by Morgan Stanley & Co. Incorporated. In the opinion of bond counsel, interest on the bonds is exempt from Federal income taxes.

The bonds will not be redeemable, except in certain special circumstances, prior to January 15, 1987. They will be redeemable at Union Carbide's option at 103 percent of the principal amount on January 15, 1987, and on any date thereafter in whole or on any interest payment thereafter in part at decreasing prices. They will also be subject to redemption through operation of a sinking fund, beginning January 15, 1993.

The bonds are payable solely from revenues to be received by the Ohio Water Development Authority under a loan agreement between the Authority and Union Carbide. The bonds will not be a charge against the general credit or taxing power of the Authority or the State of Ohio.

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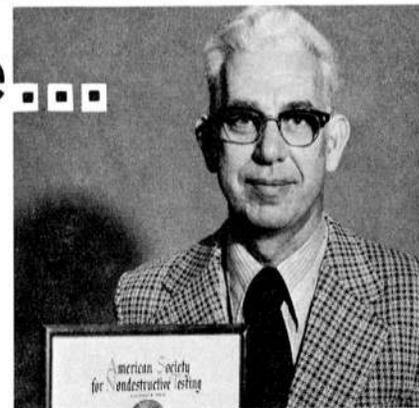
ORGDP
 Doug Carter, Ext. 3-3434

PADUCAH
 Keith Bryant, Bell 369

Member,
 INTERNATIONAL
 ASSOCIATION
 OF BUSINESS
 COMMUNICATORS

about people

PH76-123



Losh

Lawrence G. Losh, physical testing instructor in Y-12's Training and Technology Project, has been awarded a certificate for outstanding effort in a membership drive for the American Society for Nondestructive Testing. The honor came to Losh in the society's annual meeting held last fall in Houston. The society has approximately 6,000 members in 65 sections throughout the United States.

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.

Consolidated credit unions?

QUESTION: Why is it necessary to have three separate credit unions for Nuclear Division employees in the Oak Ridge area, each in its own building and one starting a new building . . . when one location would suffice thereby giving employees a lower rate of interest on loans and higher dividends? I thought the credit unions were for the benefit of employees on a nonprofit basis.

ANSWER: The credit unions at Y-12, ORNL, and K-25 were chartered at different times as separate institutions, independent of the Company. Since each was established for the benefit of its members and is a nonprofit organization, the Company does cooperate with the credit unions by making payroll deductions and in other ways. The members control the operation of the credit unions within the Federal regulations which place limits on many things such as maximum rate on dividends and interest. Each of the credit unions has an annual meeting at which officers are elected and other business conducted.

Each of the credit unions is a sizeable institution capable of standing on its own. For example, the ORNL credit union, the largest of the three, reported assets in excess of \$29,000,000 at the end of 1975.

If you are interested in details on the operations, you should contact the president of your particular credit union and by all means attend the annual meeting.

Vacation scheduling

QUESTION: A weekly employee who joins the Company in the middle of June becomes eligible for one week of vacation shortly before the end of the year. He/she then finds that the five days must be taken before the end of the year, and the employee does not receive any more vacation until the hire-in date of the next year. This means that the employee must go a year without any vacation except for the one week which must be taken during the last half of December. Isn't this a needless inconvenience to the employee who makes the mistake of hiring in a couple of weeks too early?

ANSWER: Since this employee would receive one week's vacation in December, after completing six months' service, and then be eligible for two additional weeks of vacation after completing a year's service in the following June, it is difficult for us to follow your line of reasoning.

If the employee had been hired after the first of July, the first week of vacation could not be taken until January of the next year and the second week after completing a year in July. The employee, of course, could wait until after completing one year in July and take both weeks at the same time.

When a salaried employee completes six months' service in the year in which employment starts, an extra week of vacation is earned when compared to the salaried employee who is hired during the second half of a year.

Policy on nepotism

QUESTION: What is the Company's policy concerning nepotism? A supervisor at our location has his brother-in-law under his supervision. How can the Company justify this?

ANSWER: There is no formal Company policy prohibiting a person working for a close relative. Normally, however, we think it is best for a supervisor not to have a close relative under his/her supervision. There are, however, exceptions to this general rule where, for example, a married couple is involved in a common research project.

We do not know the circumstances involved in the case to which you refer, but normally we try to avoid this kind of a situation.

Telephone systems

QUESTION: Is anything being done to improve the telephone system between Y-12 and Purchasing or ERDA? There are times during the day when it is virtually impossible to get a call through from Y-12. On several occasions recently it has been necessary because of the urgency of the information to dial 483-8611 and ask the official operator for the desired 3-4000 number.

ANSWER: We are aware that the telephone service at Y-12 is inadequate. The equipment being used is quite old and there are not enough lines available.

Steps are being taken to bring about improvement. Additional lines are now being added, which should bring about some improvement. Significant improvement, however, will come about only when the system is completely renovated. Recommendations have been made in connection with this but, if approved, installation of new equipment is still at least two years away. In the interim we ask users not to make unnecessary calls and to be patient.

University study

QUESTION: I am participating in Carbide's university study program, which provides for reduction of the workweek by 20 percent. Would it be possible to have this program reviewed so that a person could reduce the workweek by less than 20 percent, if desired?

ANSWER: Your suggestion is a practical one, and steps will be taken to permit an employee to reduce his/her workweek by less than 20 percent if this is desired and it meets with his/her supervisor's approval.

Ed Gambill named to head quality assurance office

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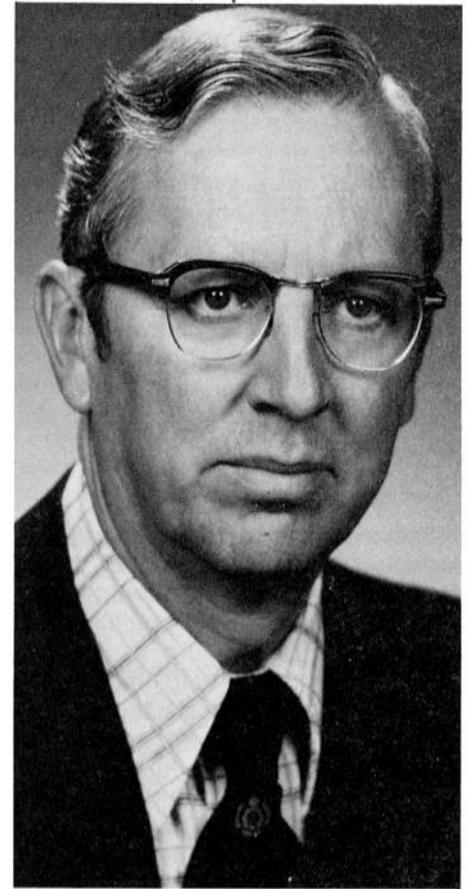
The appointment of E. F. Gambill as head of the Office of Quality Assurance for the Nuclear Division has been announced by Roger F. Hibbs, Division President.

In this newly established position, Gambill will be responsible for establishing quality assurance policy and assisting in the implementation of quality assurance programs throughout the Division. He will report to James C. White, Technical Services Manager.

A native of Mountain Grove, Mo., and a veteran of the U.S. Army, Gambill holds a B.A. degree in mathematics from Drury College in Springfield, Mo., and a master's degree in statistics from the University of Alabama.

He was employed at the University of Alabama before joining the Union Carbide organization in 1954. In 1968, he was named superintendent of the quality control department at the Oak Ridge Y-12 Plant and in 1972 became manager of the Y-12 Technical Division.

He and his wife, the former Sarah Martin of Aniston, Ala., live at 119 Bradley Road, Oak Ridge. They have three children: Joe, Jane and Jim.



E. F. Gambill

Supplemental insurance rates are reduced for participants

There is good news for the more than 14,000 Nuclear Division employees who are participating in the Supplemental Life Insurance Program!

Employees participating in the Basic Life Insurance Plan have had the option since July 1, 1969, to purchase an additional one times annual pay in Supplemental Life Insurance at low group rates that vary by age brackets.

As a result of favorable experience, no payment for Supplemental Life Insurance will be required of present participants during the first six months of 1977 (26 weeks if you are paid weekly). Thus, if you are participating as of December 31, your next payroll deduction for Supplemental Insurance will be in July, 1977.

In addition, Supplemental Insurance group rates will be decreased effective July 1, 1977 (January 1, 1977, for new participants). The present and new rates for Supplemental Insurance, which take into consideration the past experience by age bracket, are:

Per \$1,000 Insurance		
Present Rates	Age Bracket	New Rates
25c/mo.	Under 40	20c/mo.
65c/mo.	40-54	55c/mo.
\$1.60/mo.	55-64	\$1.55/mo.

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
September 76	12.7800	64.2020	8.8021
October 76	12.8706	60.0703	8.5837
November 76	12.9621	57.6422	8.4938

Note: Fixed Income Fund unit values reflect interest additions to achieve the guaranteed effective annual interest rate of 8.85% for 1976. 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.

Laser technique developed to identify single atoms

Development of a technique which, for the first time, permits scientists to detect and uniquely identify single atoms of various elements has been reported by researchers at ORNL.

The achievement represents the ultimate in analytical sensitivity—the detection of one atom and its reactions with other matter. It makes possible "one atom chemistry," in which atoms produced one at a time are allowed to react with other species under the control of the observer.

Among potential applications, the technique promises to provide a more sensitive method for identifying and measuring chemical pollutants in the environment.

First time in single event

Previously, others have shown that the movements of individual atoms can be "seen" with a scanning electron microscope. And it long has been possible to record the radioactive decay of one atom. But in neither case is the atom uniquely selected and observed in a single event, as with the newly developed technique.

Experiments at ORNL have demonstrated the detection of a single atom of the element cesium in a sample of at least 10 billion billion other atoms and molecules of different kinds.

Results of the research were presented at the annual information meeting of the Laboratory's Health Physics Division. They are reported in an article submitted for publication in the journal, "Applied Physics Letters."

Authors of the report, all members of the atomic physics and laser research group, are G. Samuel Hurst and Munir Hasan Nayfeh of the Health Physics Division and Jack P. Young of the Analytical Chemistry Division.

Laser excites selected atoms

The successful demonstration of the one atom detection is based on the use of light (photons) from pulsed dye lasers to excite selected

populations of atoms contained in gaseous form in a counting device.

An intense laser beam is pulsed into a proportional counter which contains the atoms to be detected. The laser light is of such intensity and of such a carefully controlled frequency that every atom of the type to be detected, within the path of the laser beam, is first excited and then ionized by the beam.

This results in one electron being removed from each atom of the pre-selected type, whereas the many billions of atoms or molecules of any other type which are also within the laser beam are essentially unaffected.

The sensitivity of the proportional counter through which the laser beam passes permits a single electron, when formed anywhere within the device, to be counted.

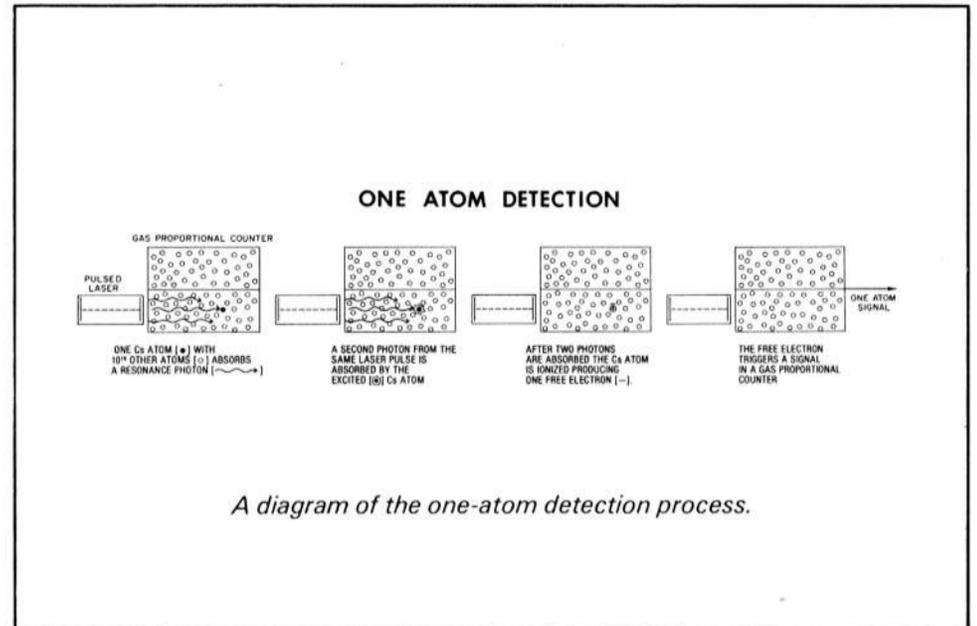
Since lasers can deliver enough energy at a given frequency to ionize all members of a selected population of atoms in the counter, a sensitive and absolute measurement of only that population is possible.

Many potential applications

Development of the capability is the result of basic research in the chemical physics and spectroscopy section of the Health Physics Division. This work has included both theoretical aspects of the interaction of laser beams with matter and experimental spectroscopy using proton beams to excite matter.

The new technique, the ORNL researchers point out, appears to be applicable to a wide range of scientific investigations limited by the sensitivity with which small concentrations of atomic or molecular matter can be detected.

In addition to the potential environmental applications, they suggest that it will be useful in such areas as detection of recently discovered elements produced only in quantities of a few atoms; the detection of such rare events as nuclear



A diagram of the one-atom detection process.

reactions from solar neutrinos; and the search for exotic quarks, which represent a possible key to the ultimate structure of all matter.

The method of one atom detection can be extended to nearly half of all known elements by using a variety of instrument configurations, including in some cases more than one laser, the authors say. Substances at the molecular level also can be classified by dissociation and subsequent identification of the resulting atoms.

The authors state that pulsed lasers can be triggered in some known time relationship with either periodic or random external events, thus one atom detection can incorporate time resolution.

Other suggested applications include: the detection of daughter atoms from radioactive decay; slow evaporation of atoms from surfaces; slow transport processes at the atomic level; and the rate of reaction of elements in various chemical environments.

calendar of events

January 17

University of Tennessee Phi Beta Kappa Visiting Scholar Program: Harvey Brooks, Harvard University. "Enlargement of the Domain of Ethics by Science and Technology," Humanities & Social Sciences Bldg., Room 104, 11 a.m.; "Systems for the Support of Science in the U.S., Europe and the USSR," McClung Tower 1210, 2 p.m.; "Technology: Hope or Catastrophe," Shiloh Room, University Center, 8 p.m.

January 18

University of Tennessee Phi Beta Kappa Visiting Scholar Program: Harvey Brooks, Harvard University. "Resources and Economic Growth," Glocker 131B, 9 a.m.; "The Expert and the Politician," Dougherty Hall, 11 a.m.; "Technology Assessment and the Environmental Movement," Shiloh Room, University Center, 3:30 p.m.

Greater flexibility offered in PIA plan

The Personal Investment Account (PIA) part of the Savings Plan has been changed to offer much greater flexibility for investment. Until now, holdings of Fixed Income Fund Units and Equity Investment Fund Units could be switched to other investments only once, and only after the participant reached age 50. After January 1, 1977, the only limit on the number of times conversions of Fixed and Equity Fund Units can be made is that a period of at least 12 months must elapse between conversions. As in the past, conversions of Union Carbide Common Stock and United States Savings Bonds continues to be permissible at any time. Any portion or all of your investments in the PIA may be converted to one or more of these PIA investment options:

- The Fixed Income Fund
- The Equity Investment Fund
- Union Carbide Common Stock
- United States Savings Bonds

There is no penalty for making conversions, and no income tax consequences so long as the conversion is from one investment form to another within the Personal Investment Account.

The 1977 effective annual interest rate for the Fixed Income Fund will be 8.70 percent. This is a decrease from the 1976 rate of 8.85 percent, and reflects not only the lower current interest rates offered investors, but the outlook for interest rates in 1977. The 1978 rate is guaranteed to be no less than 8.55 percent although it may be higher.

More information is available from your Benefit Plans Office.

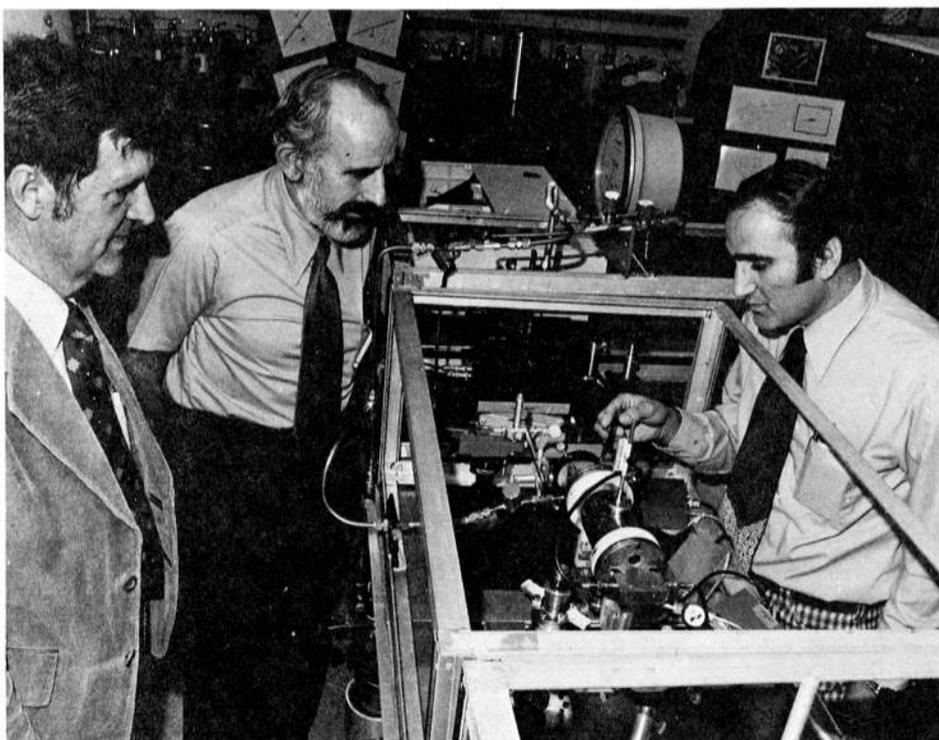
Withholding tax information coming

W-2's, those cryptic little pieces of paper that tell you how much you made last year, and how much withholding tax you have paid, will be mailed to all of us early next week.

The Payroll Department aimed at January 10 as the target date for mailing the forms.

A copy of the W-2 is required by the Internal Revenue Service to accompany your tax return for 1976.

Happy filing!



Examining the experimental setup used in one-atom detection are (from left) G. Samuel Hurst, Jack P. Young and Munir Hasan Nayfeh, all members of ORNL's atomic physics and laser research group. The development is based on the use of light (photons) from pulsed dye lasers to excite and then ionize selected populations of atoms contained in gaseous form in a counting device.

6398-76

McNeese, Scott to new posts in Chemical Technology



0103-74

L. E. "Gene" McNeese



165-4-73-

Charles D. Scott

The appointment of L. E. "Gene" McNeese and Charles D. Scott as associate directors of the Chemical Technology Division at Oak Ridge National Laboratory have been announced by Don E. Ferguson, division director.

The two new positions are part of a restructuring that reflects the expanded activities of the division. Chemical technology development at ORNL involves most aspects of the nuclear fuel cycle and now also includes work related to development of fossil and other energy sources, as well as biomedical and environmental-control technologies.

McNeese will oversee programs in engineering coordination and analysis and isotope separations. Scott will be in charge of experimental engineering and advanced technology.

In other new assignments, Jack R. McWherter has been named program manager of coal conversion studies. Newly appointed section heads are: Ronald W. Glass, engineering coordination and analysis; J. Robert Hightower, Jr., advanced technology; and Rex E. Leuze, experimental engineering.

McNeese joined the Chemical Technology Division in 1957 after receiving his chemical engineering degree from Texas Technological College. He received his master's degree from the University of Tennessee in 1963 and has completed course requirements for the Ph.D. there.

McNeese, his wife, Gurene, and three children live at 103 Morgan Road, Oak Ridge.

A 1951 chemical engineering graduate of the University of Missouri, Scott received the M.S. and Ph.D. degrees from the University of Tennessee in 1961 and 1966, respectively. He has been a member of the Nuclear Division staff since 1953.

Scott, his wife, Alice, and three children live at 240 Louisiana Avenue, Oak Ridge.

Heads section in Fusion Energy

The appointment of Martin S. Lubell as head of the magnetics and superconductivity section, Fusion Energy Division at ORNL, was announced by Division Director John F. Clarke.



Lubell's responsibilities include directing the research and development necessary for the fabrication of large superconducting coils which will be required for future plasma experimental devices and tokamak fusion reactors.

Lubell received his bachelor's degree from the Massachusetts Institute of Technology and his master's degree in physics from the University of California at Berkeley. He joined the Fusion Energy (then Thermo-nuclear) Division staff in 1967 and initially worked in the superconducting research group, but had served as assistant manager of the Superconducting Magnet Development Program since 1974.

Lubell and his wife, Berni, and son Darry, reside at 126 Wendover Circle, Oak Ridge.

ORNL 5/42-76

Y-12 Credit Union meets January 20

The Y-12 Credit Union has set its annual meeting for 7 p.m., Thursday, January 20, at the Oak Ridge Civic Center. The door will open at 6 p.m. for registration. Cash is available for door prizes, and the grand prize will be a micro-wave oven.

Entertainment, plus the usual business of electing officials, setting policy, etc. will be the order of business.

Named to new jobs at ORGDP



PH76-2891

PH76-2892

PH76-2890

PH76-2889

Calvert

Greene

Hill

Seyfried

Four recent promotions are announced at the Oak Ridge Gaseous Diffusion Plant. Gary L. Calvert is a new supervisor in the Utilities Division; James L. Greene is a supervisor in Maintenance; James B. Hill Jr. is an inspection supervisor in Technical Services; and Robert E. Seyfried is named an employee relations representative in Employee Relations.

Calvert, a native of Oak Ridge, attended Middle Tennessee State University and the University of Tennessee. He worked as a draftsman for the Carrier Air Condition Corporation before joining Union Carbide in 1972.

Married to the former Linda Gail King, Calvert lives at 174 California Avenue, Oak Ridge.

Greene was born in McMinnville, and worked with the Century Electric Company. He joined Union Carbide at the Y-12 Plant in 1965 and transferred to ORGDP in 1969.

Married to the former Bonnie Tip-ton, Greene lives at Route 4, Kingston.

Hill was born in Rome, Ga., and worked in Y-12 five years before transferring to ORGDP in 1975.

He and his wife, Helen, live at 226 South Dillard Avenue, Oak Ridge. They have four children, Derrick, Darrell, Dewayne and Jamil.

Hill served in the U.S. Air Force before joining Union Carbide.

Seyfried, a former technical illustrator, has been with Union Carbide 20 years. He was raised in Oak Ridge, and is a graduate of the University of Tennessee, the U.S. Army Command and General Staff College, and the Industrial College of the Armed Forces. He is a lieutenant colonel in the U.S. Army Reserve.

Seyfried lives at 113 Cahill Lane, Oak Ridge. He has two sons, Mark and Michael; and a daughter, Michelle.

anniversaries

Y-12 Plant

30 Years

Clarence G. Christiansen, 9215 Rolling Mill; Arnold A. Agee, M-Wing Shop; and Thomas H. McDonald, Alpha 5 West Shop.

25 Years

Arvin E. Huskisson, Harry E. Henderson, Ogle Moore, James A. McNeely, Byron H. Hale, Charlie L. Nelson and Carl L. Monday.

20 Years

Frederick H. Frank, Owen L. Duncan, Francis E. Ryan and Morgan H. Carter Jr.

Paducah

25 Years

Karrel L. Wallace, Norman L. Blakely, Bobby J. Cain, Boyce T. Hyde, Paul A. Bielefeld, Paul R. McGee, Robert E. Lynch, Charles W. Humphrey, Russell E. Hagler, George L. Chapman and William L. Dupree.

25 Years

Betty J. Lester.

ORGDP

30 Years

Clyde R. Benson, Operations Division; George W. Robinson Jr., Isotope Analysis Department; Richard Aiken Jr., Chemical Analysis Department; Annalynn Estes, Laboratory Administration; and Lois A. Greene, Medical Department.

25 Years

Edward M. Zukowski, Evelyn M. Bostic, Bobbie C. Robinson, David E. White, John C. Human, Willis E. Muldrew, William C. Brock, Clarence L. Arnwine and Elizabeth R. Williams.

20 Years

Ridley W. Ray, Clinton C. Courtney and William R. Pegel.

ORNL

Stanley F. Carson, Biology Division; Perry W. Hembree Jr., Plant and Equipment Division; Carl T. Cooper, Plant and Equipment Division; and Stanley R. Dinsmore, Chemical Technology Division.

25 Years

John G. Moore, Clarence T. Thompson, Dvon Brogan, Gus E. Testerman, Melvin G. Willey, Peggy H. Geldmeier and Bobby L. Logan.

20 Years

Harold Tompkins, Bobby G. DeVal, Charles M. Holley, Arline H. Culkowski, James D. Rylander, Franklin E. Gillespie, Tommy G. Scott, Volena B. Foster and John A. Goan.

next issue ...

The next issue will be dated January 20. The deadline is January 12.

safety scoreboard

Time worked without a lost-time accident through December 29:

Paducah	92 Days	1,098,000 Man-Hours
ORGDP	82 Days	2,478,701 Man-Hours
Y-12 Plant	21 Days	508,000 Man-Hours
ORNL	104 Days	2,309,870 Man-Hours

Christmas parties, 1976, for Oak Ridge employees' children



They came by the hundreds . . .



Got royally entertained by sparkling talents . . .



Visited a while with old Santa himself . . .



Then all left on their happy way .

Paducah shift workers . . .

The recreational facilities at the Broadway United Methodist Church gymnasium has been scheduled for the convenience of rotating shift workers in the Paducah area.

The facilities will be available each Friday, from 9 to 11 a.m., through March 18.

Admission to the gym is by badge for all Paducah employees in the Nuclear Division.

ORGDP bowling . . .

The Payoffs are a whit ahead of the Uptowners in the ORGDP Women's League. Elaine Griffies rolled a 222 single, boosted to a 247 handicap recently, and Nancy Falkinburg put a 542, 623 series on the boards.

The Wednesday League puts the Hi-Rollers just a bit above the Mix-Ups. Larry Woods rolled a 277 game to pace bowlers recently, as Paul Febbo followed close behind with a 269.

The All-Stars still hold the reins in the Tuesday league, S. R. Smith recently rolled an even 600 series scratch, and G. T. McIntyre paced bowlers with a 234 single.

Y-12 bowling . . .

The Alleywreckers and Friskies are tied for first place in the Y-12 Mixed League with only one night remaining in the first half. Bill Jago's 673 series, as well as Nancy Garrison's 641 still stand as season highs.

The Splinters stand four points out front in the Y-12 Classic League, ahead of the Ridgers and Mets. Eddie Edwards put a 729 series up recently, and Bill Sises rolled a 282 single!

The C League sees the Rounders two and one-half points ahead of the Mini-Strikers in the C League. Dick Huber's 737 is still high, as is George Cantrell's single of 282.

ORNL bowling . . .

The Mousechasers hold a comfortable lead in the ORNL Ladies League, ahead of the HP-Ettes and Bowling Aces. White Gaither's 569 series was a recent high, as was her single of 219.

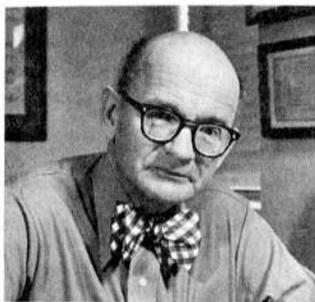
The Damagers are still way out in the C League, as the Remkeys rolled a rollicking 3033 series early in December.

The ORAU team moves into first place in the A League, replacing the Ten Pins. The Recycles' Olsen posted a 645 series recently.

Carbide bowling tourney . . .

The 1977 Carbide Mixed Bowling Tournament is set at the Tri-County Lanes for February 12, 13, 19, 20, 26, 27. Entry forms are in the hands of all league secretaries.

The deadline for filing is Friday, January 21. Additional information or entry forms may be obtained from the Recreation Department, extension 35833.



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: "How much blood does the body contain? What is blood group, and what constitutes a blood type? Why are different ones incompatible? Is there danger in donating blood? Why is 'fresh' blood needed? Does periodic donation enhance one's health? (Refresh blood stimulate production or the like?)"

ANSWER: The total amount of blood is approximately 1/14 of the total body weight. For the average person, this amounts to about ten pints. If one wants to calculate it more precisely, there are about 60 to 70 milliliters (30 milliliters per ounce) per kilogram of body weight (1 kilogram equals 2.2 pounds). Thus a person weighing 185 pounds (84 kilograms) would have 5460 milliliters or about 5½ liters, or 182 ounces, or almost 5¾ quarts of blood.

Blood in men normally contains about 45 to 47 percent of the volume in cells and the rest in plasma. In women it is about 40 to 42 percent cells. Plasma is 90 percent water and the rest is composed of various dissolved solids such as proteins, salts (sodium, potassium, etc.), nutrients (glucose, fatty acids, etc.) and miscellaneous chemicals. Plasma is the liquid part of the blood before clotting has occurred. Serum is the liquid part of the blood remaining after it has been allowed to clot. The clotting process removes some of the constituents from the blood; therefore, some blood tests are performed on serum, some on plasma, and some in whole blood.

The red blood cells of one individual are almost never exactly like the red cells of another. They are different because they have a slightly different chemical structure on the cell surface. These surface differences are called antigens and can be grouped together into what are known as blood group antigens. These antigens, when injected into another person, will cause that person to develop antibodies against these "foreign" cells. If enough antibodies have been produced, they will attack any further introduction of the same antigen. Thus, a person who has mistakenly been given a small quantity of the wrong type of blood will develop antibodies against that type blood and if it is ever transfused again, a serious or even fatal antigen-antibody reaction could occur.

Blood types

Blood typing is performed by mixing the cells of the patient with serum containing antibodies against the major groups. The most important grouping is called the ABO system. Approximately 41 percent of the U.S. population contains the Type A antigen and are therefore considered to have Type A or Group A blood. About 9 percent have only the B antigen and are Type B. Four percent have both A and B antigens and are Type AB, and 46 percent have neither A nor B and are Type O. These types are inherited. For example, if both parents have Type A blood all their children must be Type A. A neat color chart has been prepared of the ABO Genotypes possible from various matings and is used by pathologists called to testify in paternity suits.

Human red cells can also be classified as Rh positive or Rh negative using an antigen antibody testing system comparable to the ABO system. About 85 percent of the U.S. population are Rh positive and 15 percent Rh negative. The Rh antigen is of concern in certain pregnancies since the developing baby may have inherited Rh positive blood from the father. If an Rh negative mother has been sensitized to the Rh factor because of a previous transfusion or having had another Rh positive baby, she may produce antibodies against her own baby's blood, causing it to develop a severe anemia.

Criteria for giving

The principal danger in giving blood is fainting after the donation. This unfortunate but usually inconsequential complication (unless the patient gets injured during the faint) occurs more often in men than in women. Blood banks watch cocky athletes especially carefully. An old axiom used to be, "The bigger and stronger they are, the harder they fall!"

The criteria for giving blood are designed for maximum protection (both medical and legal) for the donors and for those collecting the blood. Just because a person was rejected from a donation does not necessarily mean that a major medical problem exists. To be eligible as a donor, a person needs to be between 17 and 66 and needs to be at least 110 pounds if a full unit is to be donated. The body temperature should not exceed 99.6 degrees F. The pulse should be between 50 and 100 beats per minute and exhibit no



OPERA COMES TO OAK RIDGE—The Oak Ridge Symphony, shown here in concert during 1976 under the direction of Donald Neuen. A total of 23 Nuclear Division employees are members of the group, with six spouses also participating. Guest conductor Robert Carter Austin will lead the orchestra in Rossini's "Barber of Seville" Saturday, February 5, at 8:15 p.m. in the Oak Ridge High School auditorium.

K-25 Credit Union sets annual meeting

Friday, January 28, is the date set by the K-25 Credit Union for its annual meeting. It will begin at 7:30 p.m. at the Oak Ridge Civic Center. The meeting will cover a business session, which will elect members to the board of directors and members to the credit committee, questions from the floor, and reports from the various committees in the credit union.

Door prizes will be awarded, and all member are urged to attend.

pathologic irregularity. The blood pressure should be between 90 and 180 millimeters mercury systolic and not over 100 diastolic (90-180/100). Women should have a hemoglobin of at least 12.5 grams (per 100 milliliters) and men 13.5 grams. The last donation must have been more than 8 weeks previously. The donor must not be pregnant, have any acute illnesses such as respiratory infections or influenza, and should not have problem chronic illnesses such as heart or lung disease. If the donor has had recent immunizations or allergy desensitizations, or is taking certain drugs, he (she) may not be accepted. The donor also should not have had malaria or hepatitis at any time in the past.

Why "fresh" blood?

Fresh blood is sometimes requested when the recipient has a deficiency in oxygen carrying capacity due to a severely decreased supply of red blood cells. When the recipient needs fresh platelets to help the clotting mechanism or has a deficiency in certain coagulation factors they can only be helped by transfusing fresh blood.

There is no evidence that periodic bleeding enhances health. Healthy people who rapidly replace their red blood cells can give every two months. However, most people require about 120 days to replace all their lost cells, so every three months is an often prescribed interval.

Giving blood helps your fellow human beings, which should be sufficient justification by itself.

Opera is coming!

Opera is coming to Oak Ridge! The Oak Ridge Symphony Orchestra will present Rossini's comic opera "Barber of Seville," Saturday, February 5, at 8:15 p.m. in the Oak Ridge High School auditorium. Robert Carter Austin, director of the well-known Chattanooga Opera Association, will conduct the orchestra in this fully staged performance by the Chattanooga opera group. The opera will be sung in English.

The Oak Ridge Symphony, with a membership of some 70 members, has grown in stature and excellence through the years. A total of 23 Union Carbide employees, together with six spouses, are currently playing in the orchestra. Many have been members since it was founded in 1943. In addition, there are 15 students, children of employees, who are now regulars with the orchestra.

Ticket information on the "Barber" may be obtained from Mrs. Robert Stone, 118 Canterbury Road, Oak Ridge.

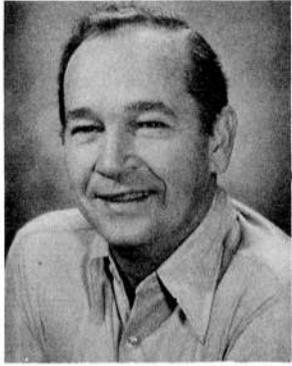
Will aid in consumer product research

ORNL is one of three national laboratories which will manage consumer product and technology research for ERDA, according to an announcement made in December.

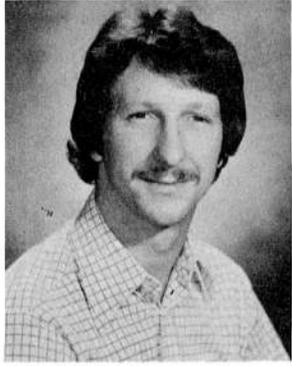
The Federal government's plans to develop energy-efficient appliances, lighting systems, space heating and cooling equipment, insulating materials and other consumer products are among topics to be discussed at an ERDA-sponsored public meeting February 3 in Washington, D.C. It will be the first in a series of meetings designed to acquaint potential contractors and the general public with ERDA's national program to develop energy-saving appliances and other buildings-related consumer products and technologies.

ORNL will be specifically involved in research to improve the efficiencies of a wide range of consumer appliances for use in residences and commercial buildings, the ERDA announcement said.

Promoted at Paducah Plant



Hoskins



Mayo



Pierce

Three promotions are announced at the Paducah Gaseous Diffusion Plant. Floy E. Hoskins and William T. Mayo have been made senior inspectors; and Thomas E. Pierce has been named security analyst in Industrial Relations.

Hoskins, a native of Clinton, Ky., served in the U.S. Air Force before joining Union Carbide almost 24 years ago. He attended the USAF Auto Technical School and the RSES Technical School, Paducah.

He and his wife, the former Margarette Smith, live at 130 Austin Avenue, Paducah. They have three children, Deborah, David and Deena.

Mayo, a native of Jackson, Tenn., joined Union Carbide in 1975, after working with the Citizens Paducah

Bank and the U.S. Life Credit Corporation.

Mrs. Mayo is the former Pamela Stewart, and the couple lives at Route 5, Old Mayfield Road, Paducah.

Pierce, a native of Paducah, attended the Paducah Community College. He has been with Union Carbide 25 years, and worked as a timekeeper, payroll control clerk, a fire and guard lieutenant and as a photographer, as well as a safety reports clerk.

He and his wife, the former Laverne Parrish, live at 5721 Locust Lane, Paducah. They have a daughter, Linda; and a son, Keith.

Improvements in State Highway 58 to ORGDP set for Spring

Many of the employees who regularly travel State Highway 58 to and from work have probably noticed the occasional appearance of survey crews along the road. Their presence previews the implementation of the first phase of construction of an overall plan proposed to improve the road system serving the Oak Ridge Nuclear Division plants. This construction involves the addition of a fourth lane to State Highway 58 from the area of the ORGDP overlook to the area of the intersection of State Highways 58 and 95. Work will begin in early spring of 1977 and is scheduled for completion by the end of the year.

Initial site preparation work, which includes extending the plant utility, gas, water, and drainage lines will begin as weather permits. Clearing and grading work on the right-of-way is expected to start in March or April.

The contractor has been made aware of the heavy flow of traffic during the morning and afternoon periods and Company officials are

considering various means to minimize the effect of the road construction on employee traffic. There is no doubt, however, that some inconvenience will occur.

wanted



ORGDP

JOIN or FORM CAR POOL from West Knoxville area (Lonas Rd.) to Portal 4, straight day. Mark Sollenberger, plant extension 3-3895, home phone 584-8841.

JOIN car pool from Concord/Farragut area, Knoxville, to Portal 3, A Shift. Don Muldrew, plant phone 3-3421, home phone Concord 966-8306.

RIDERS from Elmhurst, Oak Ridge, to Portals 9, 2, 4 and 7, straight day. Chuck Agle, plant phone 3-9611, home phone Oak Ridge 482-5738.

ORNL

RIDERS to join Knoxville Commuter Van Pool from West Knoxville, I-40 Papermill Road exit area or Walker Springs Road exit. R. L. Pearson, plant phone 3-1875; home phone 588-9949.

VAN POOL RIDERS WANTED from Beaver Creek Drive, Karns-Solway area, any portal, 8 a.m. to 4:30 p.m. Gary Wright, plant extension 3-6441, home Knoxville 947-0241.

RIDE or will join car pool from West Knoxville, Walker Springs area, to East Portal, straight day. Need for 10-week period. Call 3-5345 and ask for Mary Scott.

division deaths

Marion Livesay, a chemical operator in the Production Division of the Oak Ridge Gaseous Diffusion Plant, died December 23 at the Oak Ridge Hospital.

A native of West Virginia, he came to ORGDP in 1944. The Livesay home is at 117 Pembroke Road, Oak Ridge.



Mr. Livesay

Survivors include his wife, Theda Gray Livesay; two sons, Robert D. and Gary J. Livesay; a daughter, Eloise Walls; five grandchildren; four brothers, Hubert, James, who works at ORGDP, Alex and Douglas Livesay; and two sisters, Mrs. Thomas Taylor and Mrs. Clarence Beard.

Services were held at the Weatherford Chapel, with burial in the Oak Ridge Memorial Park.

Carl E. Manis, a heavy crane operator in Y-12's Maintenance Division, died December 25 at a Knoxville Hospital. He lived at 507 C Street, Lenoir City, and had been in Y-12 more than 31 years.

Survivors include his wife, Viola Rogers Manis, brother, Floyd Manis; sister, Carlene Piper, and several nieces and nephews.

Funeral services were held at Click's Chapel, with burial in the Loudon County Memorial Gardens.



NEW LANE COMING—Highway 58, looking east toward Oak Ridge from ORGDP, will soon boast a new lane, hopefully to relieve the traffic situation. Construction on the lane is set to begin in March or April.

Buford A. Walker, Y-12's Research Services, died December 27, at a Knoxville hospital.

A native of New Market, Mr. Walker joined Union Carbide in 1947, after serving in the armed forces during World War II.

Survivors include his wife, Anna Hawkins Walker, 2201 Chicago Avenue, Knoxville; a daughter, Susie Walker; sons, Balcolm, Stanley and Danny Walker, and six grandchildren. Also surviving are three sisters, Rueil Hall, Erterude Oliver and Betty Sturgell and a brother, George Walker Jr.

Graveside services were held at the Jefferson Memorial Gardens, New Market.



Mr. Walker



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