



Vol. 10/No. 7 April 19, 1979

Division staff assists at Three Mile Island

17 from ORNL called to plant

Some 17 ORNL staff members provided on-site assistance at the Three Mile Island nuclear power plant during the days following the accident there on Wednesday, March 28. Their efforts included assistance in perimeter radiation monitoring, cleanup operations and control of radioactive effluents from the plant auxiliary building, and post-accident instrumentation and diagnostics analyses of the reactor's condition.

Staff from four ORNL divisions—Industrial Safety and Applied Health Physics, Analytical Chemistry, Chemical Technology, and Instrumentation and Controls—were provided for these assignments at the request of the Nuclear Regulatory Commission and DOE.

Monitoring team sent

Roy L. Clark, section head for radiation monitoring, and four health physics technicians—William J. Johnson, William D. Carden, Mitchell L. Conner and Alford C. Butler—were members of a monitoring team that worked for eight days at the site. Bobby Joe Davis, health physicist with the Safety and Environmental Control Division of DOE's Oak Ridge Operations, led the team.

James S. Eldridge, task leader in the Analytical Chemistry Division's nuclear and radiochemical analysis section, and Steven A. Hamley, health physics technician, delivered monitoring equipment to the site and also were on hand for environmental sampling and analysis as needed during the immediate post-accident period.

When the monitoring team returned to Oak Ridge, two additional health physics technicians, Bryce A. Powers and James E. Smith, also of Industrial Safety and Applied Health Physics, were assigned to assist a Brookhaven National Laboratory group in the continuation of the monitoring program.

Waste disposal, diagnostics

Four members of the Chemical Technology Division staff, led by Robert E. Brooksbank, head of the Pilot Plant Section, were participants in the task group established on radioactive effluent handling. Their concern has been the management of contaminated water in the auxiliary building and control of gaseous effluents from that facility. Brooksbank, as task group leader, has been assisted by Orlan O. Yarbrow Jr., of the division's fuel recycle section, and two members of the engineering coordination and analysis section, James W. Snider and Frank E. Harrington.

On-site activity also has involved staff members from the Instrumentation and Controls



Y-12 MOBILE MANIPULATOR—Robert Frazier, left, and William Pankratz are two of the crew members who accompanied the Y-12 Plant mobile manipulator to the Three Mile Island nuclear power plant in Pennsylvania.

Division. Working on a team with other area organizations, they have applied "noise analysis" and other analytical approaches that utilize available output signals from the reactor to provide additional information on conditions in the core. Those involved in this reactor diagnostics and surveillance program, all members of the development group in the controls section, have been Dwayne N. Fry, Robert C. Kryter and Cyrus M. Smith.

Off-site contributions

In a seminar reporting on ORNL involvement, Fred R. Mynatt, director of NRC programs at ORNL, also highlighted the substantial contributions by several individuals and groups at the Laboratory who provided analyses and advice to those at the site.

Among their tasks have been technical assistance in areas identified by NRC and DOE staff. Leaders of support teams which have provided information, advice, or

computer support on particular problems have included: Hydrogen effects—William B. Cottrell and Joel R. Buchanan, Nuclear Safety Information Center, and Glenn H. Jenks, Chemical Technology; radiation effects on pressure detectors and other instrumentation—G. Elliott Whitesides, Computer Sciences; radiation effects and core analysis—David E. Bartine, Engineering; instrumentation, diagnostics, and thermal hydraulic analysis—Lester C. Oakes and John N. Anderson, Instrumentation and Controls; fuel, cladding, and core integrity—David O. Hobson and Richard E. Pawel, Metals and Ceramics, and Richard A. Lorenz, Chemical Technology; radiation dosimetry and Keith F. Eckerman, Donald E. Dunning, Jr., Dennis C. Parzyck, Mary R. Ford, David C. Kocher and Stephen V. Kaye, Health and Safety Research; and reactor analysis—Thomas P. Hamrick, Operations.

Y-12's 'Herman' still on standby

Four Oak Ridge Y-12 Plant men who operate the plant's mobile manipulator or robot, nicknamed "Herman," have returned home after a week of standby duty at the Three Mile Island nuclear power plant, subject to 24-hour recall. The robot remains at Three Mile Island.

Robert W. Frazier, team leader, William Pankratz, Thomas E. Copeland and Richard Turner, all of Y-12 Maintenance Division, were summoned to the power plant site March 30 to operate the robot if its services were needed during the emergency. The manipulator system was transported to Pennsylvania in its travel van, driven by Department of Energy personnel.

Herman's photograph was carried in recent issues of *Time* and *Newsweek*.

One mission considered for the robot was that it enter a room which has a high radiation level and take samples of the primary coolant water for chemical and radiological analysis. During their week's stay at the power plant, the crew members rehearsed this mission, which would have involved about 35 separate operations and would have required 8 to 10 hours to complete.

Press interest

At week's end, Nuclear Regulatory Commission officials at the scene informed the Y-12 team that the operation had been postponed and that team members could return home, subject to possible recall at a later time. The manipulator system was reloaded into the travel van, but is being retained at the power plant site.

The robot apparently captured the imagination of news reporters covering the story. Wire services and newspapers across the nation requested file photographs of the manipulator system, and all three national television networks

(Please see Page 8)

Inside this issue. . .

David Sullivan, a guard at the Paducah Plant, revels in early American history. His interesting story and Indian artifacts are on page 7.

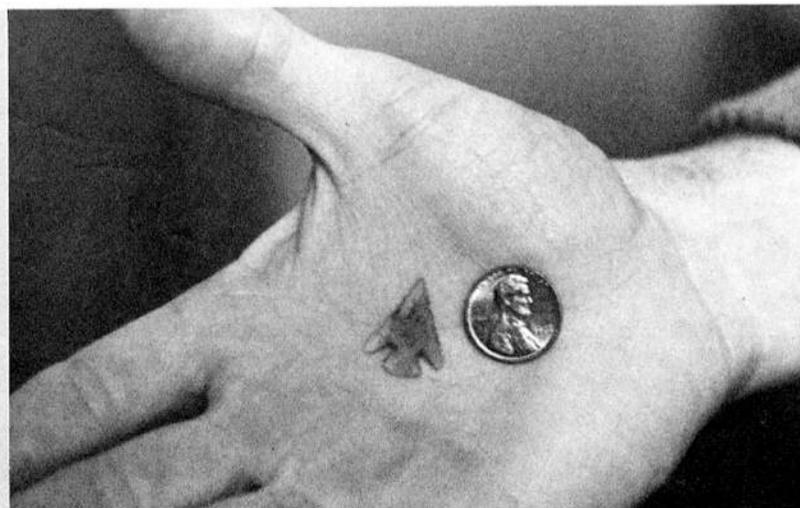
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Benefits: your 'hidden paycheck'

Pension, Social Security large percentage of benefits cost

If you're 18 and learning a new job in the Nuclear Division, retirement is probably the last thing on your mind. If you're 60 and a long-time employee, your interest may be considerably greater. But whether you're concerned about it or not, you started building credit toward retirement benefits the day you joined the Company.

There are two sides to Union Carbide's retirement program: the Pension Plan (actually called the Non-Contributory Pension Plan, since the employee pays nothing toward this benefit), and Social Security. Taken together, the two are designed to provide for retirement, to help meet the costs of illness and accidents and to help provide financial security for beneficiaries at death.

The Contributory Retirement Plan, which was started by Union Carbide in 1937 (before a Noncontributory Pension Plan existed), was closed to new participants in 1969. Most employees who were participating at that time have withdrawn from the plan over the years, but a small number (about two percent of Nuclear Division employees) still participate.

Provide retirement incomes

Under the Pension Plan, you can retire with a full pension at the normal retirement age of 65; at age 62, if you have 10 or more years of company service; or whenever your age plus your years of company service equal 85. Or, if you have 10 or more years of company service, you can retire as early as age 50 with a reduced pension. As of January 1 of this year, an employee may elect to work beyond age 65 until the new mandatory retirement age, which is 70.

If you die before retirement, after at least 10 years of company service, one or more of your dependents will receive benefits under the Pension Plan. If you die after retirement, one-half of your pension will be continued for a dependent, unless you have rejected this option. And if you become totally and permanently disabled after 10 years of company service, the Plan will pay you a disability benefit.

Social Security benefits, which are paid in addition to your income from the Pension Plan, provide a retirement income, as well as disability and survivors' benefits to those who qualify.

How much does the Company pay for your retirement program? In the case of the Pension Plan, the employee pays nothing. Union Carbide, on the other hand, must put aside enough money each year for each employee so that there will be enough money to pay a pension for the rest of that employee's life when he or she retires. The J. Q. Carbide report, which you'll be receiving soon, shows how much money will be needed to pay for your pension at the time of your retirement.

Second in series

Union Carbide uses actuarial consultants to help decide how much is enough to put aside. The actual amount depends on the age of the work force, length of service at retirement, the anticipated increase in an employee's earnings level, the expected rate of return on the money put aside, the increase in value of the investments, and the life expectancy of retirees.

In 1978, taking all of these things into consideration, the amount required was 11.5 percent of the annual payroll, or 11.5 cents per payroll dollar. This amount has been more or less the same for the past several years.

Social Security deductions

In 1979, the wage base on which Social Security must be paid rose to \$22,900; the tax rate is now 6.13 percent, up to a maximum of \$1,403.77.

For the Nuclear Division as a whole, the average Company payment for Social Security in 1978 was 5.3 percent of the annual payroll, or 5.3 cents per payroll dollar. The Company's total cost for retirement benefits then, amounts to 16.8 cents for each dollar you earn in salary—11.5 cents for the Pension Plan plus 5.3 cents for Social Security—or 65 percent of your early "benefits" paycheck. The accompanying drawing of your "hidden paycheck" illustrates this.

PREPARING FOR THE FUTURE—Retirement involves not only pension and Social Security payments, but a new way of life. Y-12 Retirement Counselor Bill Hicks talks with Dorothy Hubbard, a Y-12 employee who will retire at the end of June.



In the next issue of **Nuclear Division News** we'll be discussing life, accident and health insurance. If you have specific questions about your benefits as they are discussed in this series, contact your Benefit Plans representative: at ORGDP, call 4-8461; ORNL, 4-4483; Paducah, Bell 272; and Y-12, 4-1555.

Social Security, of course, is paid for by both the employee and the Company. The amount of your deduction appears on your weekly or monthly paycheck, and an amount equal to this deduction is paid on your behalf by the Nuclear Division.

Surplus sale set at Paducah Plant

The Paducah Plant is accepting sealed bids for the sale of surplus government property. Included in the sale are eight Dodge pickups, one GMC bus, one Matador sedan, two Ford station wagons, two Chevrolet pickups, one Chevrolet station wagon, one Dodge carryall, one Ford carryall, two electric typewriters, 11 calculators and other miscellaneous material and equipment.

Sealed bids will be accepted until 12:30 p.m. April 24. Bid documents or additional information may be obtained from D. R. Williams, C-720 building, Bell extension 282, Pax 686.

Paducah officers for retirement club elected

The Paducah Union Carbide Retirement Club elected officers at its last meeting. Elected were Bob Ligon, president; John Clark, vice-president; Becky Bugg, recording secretary and treasurer; Edith Garnett, corresponding secretary; Jesse Knott, activities chairman; B. T. Brooks, membership chairman; Musie Naive, bylaws chairman; Edith Garnett, Alda Childress, and Ab Farthing, telephone committee.

A membership fee of \$1 (\$2 for retiree and spouse) has been established for 1979 and the fee should accompany all applications. Applications should be mailed to Union Carbide Retirement Club, P. O. Box 228, Paducah, Ky., 42001 or can be paid at the club's next meeting which will be held May 7 at 7:30 p.m. at the Jackson House.

Please refer any questions to the club president, 443-6703.

Those employees who earned \$17,700 or less in 1978 paid 6.05 percent of their earnings, up to a maximum of \$1,070.85. Employees earning more than \$17,700 in 1978 paid the maximum amount, but the percentage this represents of an employee's total pay decreases as his or her salary increases. You can determine your own percentage by dividing the amount of social security you paid by your annual earnings, and then multiplying the results by 100 to convert it to a percentage.

Oak Ridge party set for retirees

A "get-acquainted" social is set by the Oak Ridge section of the Union Carbide Retirees Association Thursday, April 26, from 7 to 10 p.m. It will be held at the Senior Citizens' Center on the Turnpike at light number 11. There will be no charge, and light refreshments will be served.

UCRA has announced chairmen for various activities:

C. H. McIntyre, Reunion party; **Don Matlock, Charlie Harrill**, Golf activities; **Chris Kiem, Travel; Al Burris**, Square dancing.

Meanwhile, plans progress for the Friday, June 8, picnic...with a beginning at 9 a.m. Food will be served at 1 p.m. at the Clark Center Recreation Park. Details will be forthcoming.

Credit Union audit. . .

The Supervisory Committee of the ORNL Federal Credit Union is conducting the annual audit of its activities. Members who did **not** receive their quarterly statements, ending March 31, 1979, please call the Tennessee Credit Union League Office, toll free, 800-572-7359.

Energy tips. . .

IN THE HOME—You may not need water as hot as your heater gives you. Check the temperature. Most water heaters are set at 140 degrees Fahrenheit, or higher. If you reduced the temperature 20 degrees—to 120 degrees—you'd cut your energy use by about 18 percent. Reducing the water heater temperature just 10 degrees could save six percent or more in water-heating energy.

 <p>UNION CARBIDE CORPORATION NUCLEAR DIVISION P.O. BOX M, OAK RIDGE, TENNESSEE 37830</p>	<p>PAY TO THE ORDER OF <u>J. Q. EMPLOYEE</u></p>	<p>RETIREMENT: 65%</p>
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MORE THAN HALF—Retirement benefits—pensions and social security—amount to 65 percent of your yearly "hidden paycheck," or 16.8 cents for each dollar you earn in salary. If you earn \$12,000 a year, the Nuclear Division pays \$12,000 x 16.8¢ (.168) for your retirement benefits — a total of \$2,016.

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.

Company stores

QUESTION: Do other divisions of Union Carbide have company stores? Do they sell products other than those of UCC? If so, why are we in the Nuclear Division denied this benefit by DOE?

ANSWER: All 10 UCC divisions we surveyed do have company stores at some of their major locations. Four divisions sell only Carbide products. Four others sell non-Carbide products at some locations to a moderate degree. Two divisions have some plants that sell non-Carbide products extensively.

We discontinued selling non-Carbide products in our stores at DOE's request since 1) our prices, in many cases, were not better than those offered at nearby discount stores; 2) some items were bulky, hard to handle, and tied up money in inventory unnecessarily; and 3) in some cases, we were competing with local merchants.

Retirement parties

QUESTION: Why are janitors' retirement parties limited to the members of that retiree's present group and all other janitors are excluded? This is not the case with monthly or weekly salaried employees.

ANSWER: There is no formal policy concerning retirement parties. The normal practice has been for the employee group in which the employee works to provide a "get-together" for the retiree after work hours or sometimes at work on the final day or day preceding retirement. These activities often take place during the normal lunch hour or at a short break sometime during the day. In addition to the immediate work group, the retiree is often given the opportunity of inviting a limited number of close friends to attend if they can reasonably be permitted to do so. Admittedly, we have more latitude in connection with this type of thing where salaried employees are involved than is the case with hourly employees.

Piped-in music

QUESTION: Some time ago Y-12's Building 9704-2 had music in the offices. It was turned off, however, and we were told we could not have it any longer. Since ORGDP's K-1001 and ORNL's 4500 buildings have piped-in music, isn't this a clear case of discrimination?

ANSWER: The same sound system was being used by Y-12 for the piped-in music and for use as a public address system. Since the former interfered with the system's use for emergency or other announcements, over a year ago Y-12 management decided to discontinue the piped-in music throughout the plant. ORGDP and ORNL do not have the same problem as Y-12 regarding dual use of the system.

Air lock door at 4500

QUESTION: Since we pride ourselves in being energy conscious, why doesn't ORNL put the double air lock door system back on the south exits of 4500N?

ANSWER: Your question is a good one and has been referred to those who are directly involved. Approximately 15 years ago the doors in question and several others were removed as a matter of convenience. Although they were stored for a while, they were disposed of long ago.

A recent energy conservation survey at ORNL listed the most promising ways of conserving energy based on a seven-year payback. The south exits of 4500N were not included in this list. However, as the items which are included in the initial list are completed, it is quite possible that these exits can qualify as a future project.

Chain letters

It is reported that there are a large number of chain letters being circulated in plant mails recently. Employees are reminded that the plant mails are intended primarily for business correspondence and are requested not to use plant mails for this type communication.

ORNL's George Hurst named corporate research fellow

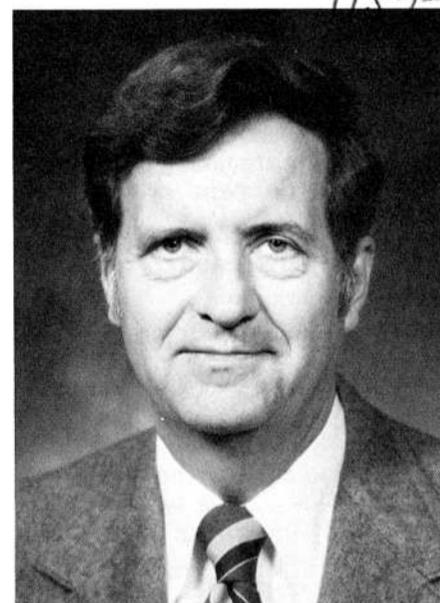
George S. Hurst, a member of the Health and Safety Research Division at Oak Ridge National Laboratory, has been named a Union Carbide Corporate Research Fellow. Hurst's selection was announced by Roger F. Hibbs, President of the Nuclear Division.

According to Hibbs, the honor is one of the highest given by Union Carbide and is awarded on limited basis to those who have chosen research and development as a career and whose contributions have been significant over a period of many years.

Hurst was recognized for basic and applied research in atomic and molecular physics, gaseous electronics and radiation dosimetry. He has identified various applications for his research findings. Two of his more recent developments promise to have significant impact on several basic and applied research areas. These are the development and application of a single atom detector and development of saturated resonance ionization spectroscopy, upon which single atom detection and other important measurements can be based.

Hurst, who is leader of the photophysics group in the Chemical Physics Section, has been a member of the Nuclear Division staff since 1948. He received his bachelor of science degree in physics from Berea College, a master's degree from the University of Kentucky, and his Ph.D., also in physics, from the University of Tennessee.

Much of Hurst's current work is related to advanced laser research and applications. This research is relevant to instrumentation for pollution detection and analysis; to new gaseous laser developments; to basic understanding of radiation chemistry and biology; and to atmospheric chemistry. Special applications of one-atom detection



George S. Hurst

are being made to solar neutrino measurements and to oceanographic research.

Hurst has twice won the IR-100 Award of *Industrial Research/Development* magazine. He is a Fellow of the American Physical Society and a member of several other professional societies.

He and his wife, Betty, live at 103 Newark Lane, Oak Ridge. They have two children.

High level scientists from People's Republic visit Oak Ridge



Two days of briefings and tours were provided recently for the highest level scientific delegation to visit the U.S. from the People's Republic of China. As members of the Chinese Nuclear Energy Society, the group's primary interests were in nuclear research, development and education. The Oak Ridge visit was part of a month-long tour of U. S. facilities arranged by the American Nuclear Society. Standing, from left, are: Lu Min, Fu Jixi, Wang Hua, Wei Zhaolin, Li Donghui, Zhang Yonglu, William Bibb (DOE-ORO), Lian Peisheng and Dai Chuanzeng. Seated from left are: Raymond Wymer (ORNL), Zhang Zhenhuan, Herman Postma (ORNL), and Wang Ganchang (leader of the delegation).



Medicine Chest

Driving under the influence. . .

(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 21, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

by T. A. Lincoln, M.D.

QUESTION: "There is much talk about the hazard of driving while under the influence of alcohol. How about driving under the influence of other drugs? I have seen people who seem to be walking around in a daze because they are taking tranquilizers. They must be awful drivers. Please comment."

1960 study

ANSWER: Many drugs can impair one's driving performance. There are relatively few studies on how many accidents are caused by drugs alone because blood analyses are seldom performed on drivers who are killed on the road or die in the hospital. Few drivers who survive will admit how much and what kind of tranquilizer or other drug they had taken because of fear of increased liability. However, one study done in 1960 reported that individuals taking 10 to 100 milligrams

of Librium daily had 10 times the expected accident rate. A Norwegian study found that 20 percent of 74 drivers who had been hospitalized after accidents had taken Valium.

The stronger tranquilizers can severely impair driving performance. Reaction time may be increased and judgment can be compromised. In addition to deterioration of performance, many tranquilizers cause drowsiness.

Antihistamines taken for treatment of allergies or colds may cause enough sleepiness to be dangerous. Even a mild reduction of alertness can precipitate an accident when quick responses could have prevented it.

Many drugs can cause blurring of vision, dizziness or impaired coordination. The drug Aldomet used for treating high blood pressure has been reported to cause amnesia-

like episodes and difficulty in concentrating.

A person who is taking one or several tranquilizers, sedatives or antihistamines and then drinks a couple of cocktails or cans of beer is asking for trouble. Alcohol may greatly magnify the primary effect of the drug, for example sedation, or may produce new effects. An example of the latter is the effect of alcohol and phenylbutazone (Butazolidin or Azolid), which is frequently used to treat gout and acute tendinitis. The combination has been reported to impair psychomotor skills.

Adequate warnings about the possible side effects of drugs are not given frequently enough. The warnings could be improved. . .but getting people to pay attention to the precautions they receive seems to be an almost insurmountable problem.

wanted. . .

ORNL

RIDERS for VAN POOL from West Knoxville area to any portal, 8-4:30. Dean Treadway, plant phone 4-6580, home phone 584-4879.

CAR POOL MEMBERS from Emory Heights Subdivision, Oak Ridge, to East Portal, 8-4:45. H. A. Friedman, plant phone 4-7461.

RIDE from Montvue Drive/West Town area, Knoxville, to West or North Portal, 8-4:30. Merl Houser, plant phone 4-4236, home phone 693-1385.

Y-12 PLANT

VAN POOL RIDERS wanted from West Knoxville, Bearden, West Town areas, to any portal, straight day. Dean Treadway, plant phone 4-6580, home phone Knoxville 584-4879.

RIDE, RIDER or JOIN CAR POOL from Clinton, Norris area, C Shift, to West Portal. C. P. Vowell, plant phone 4-2465, home phone Norris 494-0300.

RIDE from Fountain City area, Knoxville, to Biology Portal, 8-4:30. Ann Nikbakht, plant phone 4-0583.

RIDE from Fountain City area, Knoxville, to East Portal, 8-4:30. Georgia Bower, plant phone 4-0312, home phone 687-8014.

ORGDP

RIDE from Ball Road area, Knoxville, to Portal 5, D Shift. Jack McKinney, plant phone 4-1301, home phone Knoxville 690-1888.

Wanted RIDE or JOIN CAR POOL from Cumberland Estates shopping center, Knoxville, to Portal 9, straight day. Tommy Swabe, plant phone 4-9133, home 584-3788.

RIDERS for van pool - rerouting through Hidden Hills, Oak Ridge Highway and Karns, straight days, all portals. D. K. Hackett, plant phone 4-9200; home phone 584-6547.

ORGDP second blood drive May 7, 8 in new CCR building

ORGDP's second blood drive is set for Monday, Tuesday May 7, 8, in the CCR Building 1650. Hours of the drive will be from 11 a.m. until 5 p.m. on Monday, and from 9 a.m. to 3 p.m. on Tuesday.

Co-chairmen Lonnie Anthony and Greg Russell both said they expected to surpass the 507 units of blood collected last fall. "We have better space arrangements with this drive, and we have the experience of October's drive behind us."

Anthony stressed that morning donors should eat breakfast, or they will be detained by Red Cross officials in taking nourishment before a donation.

Divisional representatives are again scheduling donors and have a list of automatic deferral reasons stating why certain persons cannot give blood. These representatives, their addresses and phone numbers are:

Division	Representative	Extension
Computer Sciences	Walt Ford, K-1007, MS-1	4-8840
Employee Relations	Mary King, K-1001, MS-115	4-8586
Operations Analysis and Planning	Diane Jamborsky, K-1001, MS-198	4-8121
Maintenance	Jim Heiskell, K-1401, MS-367	4-8350
Separations Systems	Bill Taylor, K-1004VV, MS-257	6-0255
Gas Centrifuge Project Office	Susan Robbins, K-1580, MS-571	6-2000
Finance, Materials and Services	Buck Alexander, K-1001, MS-109	4-7905
Operations	Fran DeLozier, K-32, MS-309	4-1903
Technical Services and NURE	Gene Pierce, K-1004A, MS-431	4-9995
Security and Plant Protection	Janie Nations, K-1020, MS-403	4-8344
Enrichment Technology	Bill Ayers, K-1004L, MS-266	6-0131
Project Coordination	Mae Jean King, K-1001, MS-132	4-8213
Purchasing	Ethel Cannon, Charlotte Hall, RM B109	6-1532
Engineering	Ed Kreig, K-1001, MS-173	4-9122
Shift Operations	Mae Ely, K-303-7, MS-343	4-8807
General Accounting	Ron Honeycutt, K-1007, MS-25	4-9098
Environmental Management	Tommy Bowers, K-1551, MS-127	4-8224
Barrier Manufacturing	Bob Salmon, K-1232, MS-305	4-8741
Auditing	Alan May, Cheyenne Hall, MS-601	6-1477
Capacity Expansion	Gene Rooks, K-1550Q, MS-236	4-9775
Central Employment	Louise Bentley, Charlotte Hall Room A-118	6-1379

Recreation

Hi Power Rifle. . .

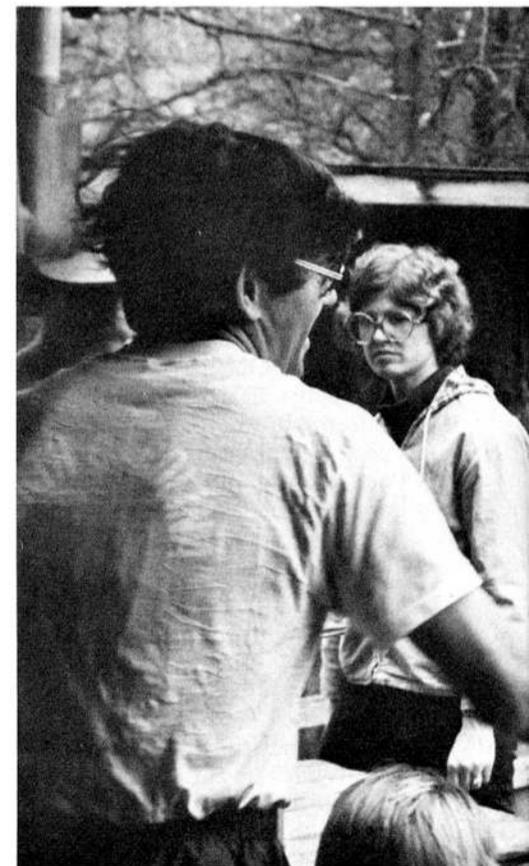
Jack Spurling of Y-12 won the first match of the High Power Rifle League with a 487 out of 500. Jack Huff of Y-12 was second with a 476, and Don Kiplinger of ORNL was third with a 459. Other scores were: L. Weston (ORNL) - 454; E. Johnson (Y-12) - 439; H. Bertini (Y-12) - 432; R. Mayton (K-25) - 431; E. Hines (X-10) - 400; M. Baker (X-10) - 338; J. Pitts (X-10) - 334; S. Yen (X-10) - 327; R. Wiegand (K-25) - 323.

Bowling. . .

George Kwicien of X-10 won first place for the month of March with a 48.575. Vernon Raen of X-10 was second with a 48.298; and Alan VanHull of Y-12 finished third with a 47.220.



NUCLEAR DIVISION OFFICERS—Officers of employees from Y-12 and ORGDP. Seated are Frazier. Standing are Charley Gillihan, Loren each Monday afternoon at the Alexander Mo are always welcomed to participate in the ac



otes. . .

ORNL C. . .

The Remkeys lead the Alley Rads in the "C" League. Weekly prizes went to Haynes, of the Timber Wolves, for high handicap series of 658. High handicap game went to Cable of the Pin Heads with a 257.

ORNL A. . .

The Woodchoppers are leading the Limits in the ORNL "A" League. The Limits won high handicap series this week rolling a 2925. McCulloch of the Limits rolled the high handicap series of 638. Wood of the Dynamics won high handicap game of 235; while Burgess of the Zots won scratch game with a 215.



'Runners, to your marks. . .'



The new Oak Ridge Toastmaster's Club involve, from left, Bert Neiman, Ted Williams and Ray Carey and Wade Adams. The club meets at 5:45 p.m. in Oak Ridge for a dutch treat dinner. Guests are invited to the toastmasters.



Keith Kahl

A total of 163 runners participated in the first roadrunner competition held at Union Carbide's park. Marshall Adams had the fastest time in the fierce competition.

Other winners were:

Men - Age group I

Mark Lambo
Steve Overbury
Matt Kelleher

Men - Age group II

Marshall Adams
Rick Alderfer
G. E. Liepins

Men - Age group III

Keith Kahl
David Cox
R. N. Compton

Men - Age group IV

Tom Fowler
C. S. Morgan
E. L. Nicholson

Women - Age group I

Jane Edwards
Becky Jennings
Lucy Holloway

Women - Age group II

Susan Kaplan
Bernadette Kirk
Faye Fletcher

Women - Age group III

Wendy Williams

Men - Age group V

Jack Terrell
F. B. Tredinnick

Photographs by:
Jim Richmond



Wendy Williams

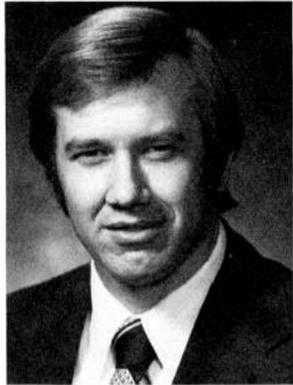


Fred Tredinnick



Marshall Adams with the fastest time; 21 minutes and 22 seconds.

About people. . .



Berry 5108-77



Dunlap 6788-79



Sigmar 6837-77



Morgan 7348-77



Murakami 6773-79

Five staff members in ORNL's fusion program have been named Fellows of the American Physical Society. They are **Lee A. Berry, Julian L. Dunlap, O. B. Morgan Jr., Masanori Murakami and Dieter J. Sigmar.**

The status of Fellow is conferred on selected members of the American Physical Society by the ruling of its Council, following their nomination by existing Fellows. Nomination must be based on specific achievements in the physical sciences.

Berry, director of the fusion program, came to Union Carbide in 1970 and was head of the Tokamak Experimental Section of ORNL's Thermonuclear (now Fusion Energy) Division from 1974 until his appointment to his present position in 1978.

Dunlap is deputy head of the tokamak group in the Fusion Energy Division's Experimental Confinement Section. He joined Union Carbide in 1959.

Morgan, director of the Fusion Energy Division, joined Union Carbide in 1958. He served both as associate director of the division and as head of the Energetic Particle Injection Section for four years before being named division director in 1978.

Murakami came to Union Carbide in 1969. He is currently coordinator of Fusion Energy's "ISX-B" tokamak experiment.

Sigmar joined Union Carbide in 1966 and left in 1970 to work in plasma physics and nuclear engineering at the Massachusetts Institute of Technology (MIT). He returned to ORNL in 1976, and is now leader of the kinetic theory group in Fusion Energy Division's Plasma Theory Section. Currently he is on loan from ORNL to MIT's Fusion Center.

NUCLEAR DIVISION NEWS

UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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Member,
INTERNATIONAL
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April 27-29...

Countless employees participating in Appalachian Festival in Oak Ridge



MUSEUM ATTRACTION—Children in the Oak Ridge area always are fascinated by the restored log cabin in the Children's Museum. Authentic down to the last detail, the cabin is filled with utensils and artifacts which depict an earlier way of life in the area.

A "step back in time to 1879" is the theme of the Children's Museum of Oak Ridge's sixth annual Appalachian Music and Craft Festival set for the weekend of April 27, 28 and 29.

A family affair it is for the George Kidd's (he is in the Biology Division). . . as Judy and George have a booth with handmade toys, and their three children have parts in the fair also.

Friday's activities begin with an old time fiddlin' and cloggin' contest with all ages participating. The banjo, harmonica, guitar, bluegrass band, etc. will also be featured.

Saturday when the doors open at noon with an old timey style dinner, handicrafts from the area will recall the relaxed way of early Appalachian life. Spinning will be demonstrated as will potters and their products.

Fred Heddleson, ORNL, will be displaying scenes he has sketched of

the area, with watercolors available also. Numbered prints of his version of the now demolished Solway bridge will be available.

Puppet shows, frog-jumping contests, sack races, contests for the best in pioneer costumes, animals and music and folk dancing from the mounts will also be highlighted Saturday.

At 7 p.m. Saturday, the best in country, bluegrass and folk music from the area will be featured.

Sunday will end the festival with a "history of dance" by a dance troupe.

Many Nuclear Division employees and families are involved in the Festival and its activities. Selma Shapiro is director of the Museum which is sponsoring the event. The Children's Museum may be contacted at P. O. Box 3066, Oak Ridge, or by telephone 482-1074.

anniversaries ...

ORGDP

35 YEARS

Stanley B. Harris, Technical Services; and Frank A. Wheeler, Security and Plant Protection.

25 YEARS

Chester R. Kennedy, Clifton K. King and Edward C. Denny.

20 YEARS

Ray B. Gann.

Y-12 PLANT

35 YEARS

Bill Hudson, Utilities Administration; Harvey T. Kite, Superintendents Division; and Willie L. Anderson, Material Transfer and Packing.

30 YEARS

Glenn M. Warren, Alpha 5 West Shop; and Charlie F. Hall, Buildings, Grounds and Maintenance Shops.

25 YEARS

Eric E. Johnson, Raymond E. McJunkins Sr., James L. Scott, Charles W. Styles, Fletcher E. Morgan, Marvin F. Hazelwood, Paul H. Giles, Burrell E. Henry, Glen L. Lambert, Donald T. Chambers, David L. Freels, William L. Gaston, Eugene H. Giles, Billy J. Hill, John F. Hughes, Roy F. Phillips, Ben Rankin, Jack K. Stewart, Cleidith A.

Boone, John J. Brock, Charles A. Hooper, Gilbert D. Ray, Clyde L. Wright, Hugh L. Boshears, Elmer D. Folden, William T. Hayley, Hubert E. Stout, Charles C. Tenpenny and Clifford Massengale.

20 YEARS

Carl G. McBee, Bernice M. Steed and Walter E. Gardner.

PADUCAH

25 YEARS

Joseph D. Hicks and Claude S. Summers.

20 YEARS

Charles E. Sanders.

ORNL

35 YEARS

Harris W. Dunn, Analytical Chemistry; James C. Elrod, Operations; Ward E. Foster, Finance and Materials; and James W. Jackson, Plant and Equipment.

25 YEARS

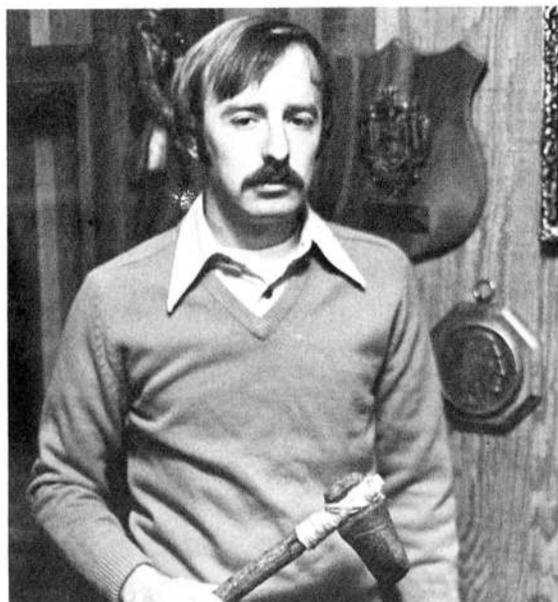
Philip T. Perdue, Joseph E. Ratledge, Ernest L. Long Jr., James M. Huffman, Lester J. King and John A. Roberts.

20 YEARS

A. L. "Pete" Lotts, Claude Jenkins, John H. Barrett and Arthur A. Smith.

A different drummer. . .

Paducah's David Sullivan 'digs' American history



As told by David Sullivan

(Editor's note: The fertile valleys of Tennessee and Kentucky provided an excellent habitat for early Americans. Witness the "different drummer" story belonging to David Sullivan, a guard at the Paducah Plant. Sullivan holds a BS degree in history from Murray State University. He and his wife, Mary Ellen, live on Route 2, Mayfield. He is a member of the Central States Archeology Society.)

Few people are aware of Western Kentucky's prehistoric inhabitants but David Sullivan, Paducah Plant guard, would like to change that someday when a notebook of clippings, photos and notes he has been accumulating for several years on the area's ancient civilizations will perhaps take the form of a book.

Sullivan became interested in Indian artifacts when his farmer father brought home a spear point he had unearthed with a plow. Sullivan still hunts his childhood farmland but, he says, "The field of collecting seems to be growing and our area is becoming more and more barren of 'surface finds.'"

Sullivan also frequents local trade days and flea markets to increase his present collection. "A common 'field find' used to be around 25 cents," he said, "and now they often go as high as \$5." Pottery is the most expensive, he added.

Sullivan has over 500 pieces which are completely intact and over 1,000 broken pieces ranging from spear points and arrowheads to pottery, pipes, tools, beads, bones, teeth and game stones.

Most of his Kentucky finds are of the Mississippian prehistoric cultural period which spans from 1000 A.D. to about 1650. "Western Kentucky was heavily populated in prehistoric times," Sullivan said, as opposed to being relatively unpopulated in historic times.

A variety of Indian tribes, collectively known as Mound Builders, was identified by Cyrus Thomas of the Smithsonian Bureau of Ethnology in 1887. "It was later found that the people who built the mounds evolved from local groups of hunter-gatherers at the end of the Archaic Period around 1000 B.C.," Sullivan explained. "During the Mississippian Period, these tribes climaxed in the highest type of culture ever known to have existed in the southeastern United States."

These Mississippian tribes dominated the Ohio Valley with major concentrations of settlements along the Mississippi and Ohio rivers. "Kentucky was particularly abundant in settlements, especially near these two rivers," Sullivan added.

"A settlement in Fulton County includes the Adams Mound, which is one of the largest in this area," Sullivan noted. There are two settlement sites there, connected by what is believed to be a hand-dug

canal. The waterway is three miles long and 15 feet deep.

Perhaps as many as 1,000 people inhabited a settlement near Barlow about 15 miles from the Paducah plant, according to Sullivan. Over 500 fortifications have also been found in the state, particularly along the western and northern borders. In 1824, Constantine Rafinesque uncovered an earthwork 1,200 feet long and 14 feet high in McCracken County. Several other area embankments featured such defenses as bastions and moats.

"Contrary to the belief that these people were basically docile," Sullivan said, "are the effigy pots which appear to be formed after heads taken in battle." There is also evidence to substantiate the presence of slaves, structured social classes and finely crafted tools and weapons. "They were highly skilled artists and craftsmen," he noted.

Sullivan's intense interest in the area's ancient history resulted in a study of the state's name which historically has meant, "the dark and bloody ground." Sullivan builds a strong case for the hypothesis that the meaning was derived from the disappearance and probable extermination of the Mississippian tribes in the mid 1600's by branches of the western Iroquois tribe which had migrated east.

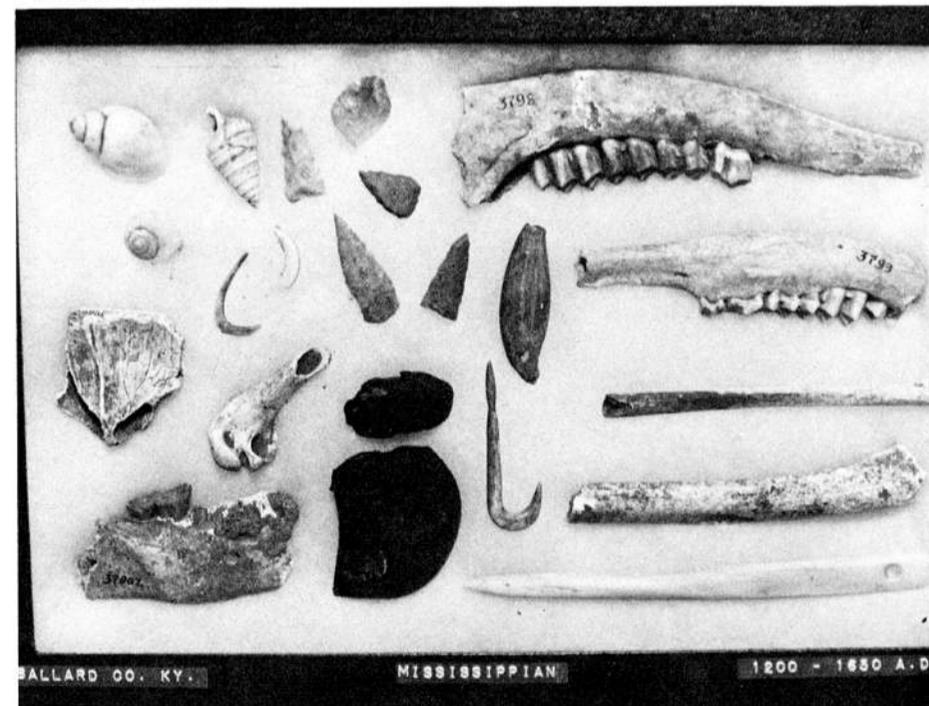
By the mid-eighteenth century, there was no sign of the prehistoric Mound Builders and the Indians had forgotten and confused the facts, Sullivan explains. Any history was probably recorded on clay or wood which would have perished and the virtual vanishing of the ancient civilization still remains somewhat of a mystery except for the artifacts and skeletal remains left here a thousand years ago.



SPEAR POINTS—from the Paleo-Indian period are probably 10,000 years old (Sullivan found these in Hickman County).



EARLY UTENSILS—This group represents several cultures. Clockwise is a grinding stone, pottery, pipe, spear points and drilling tools. The small numbers on the pieces refer to the location of the find.



ODD MIXTURE—Included in this mixture are a human jawbone, skull piece, bone fish hook, bear tooth, turkey bone needle and deer jawbone. All these pieces were found in Ballard County about 10 miles from Paducah and are dated between 1200 to 1650 A.D.

safety scoreboard

Time worked without a lost-time accident through April 11:

ORNL.....	13 Days	493,563 Employee-Hours
ORGDG.....	120 Days	3,966,563 Employee-Hours
Paducah.....	243 Days	3,028,000 Employee-Hours
Y-12 Plant.....	6 Days	154,000 Employee-Hours

Secretaries Week April 22-28 for Paducah and Oak Ridge

The theme of this year's Secretaries Week (April 22-28), "Progress Through Professionalism," focuses upon the various roles and responsibilities that secretaries face every day.

During this week, all Oak Ridge secretaries, including non-members of the National Secretaries' Association (NSA), are invited to attend the "Early Bird Breakfast Buffet" on April 25 at the Holiday Inn. The breakfast, sponsored by the Oak Ridge Chapter of NSA, will be from 6:30 to 8 a.m. In addition to outlining the Chapter's goals and outlook for 1979, the program will include the presentation of the "Member of the Year" award. Tickets, which are \$3.50, can be obtained from Frances East at ORNL, extension 4-6058; Barbara Jo Hitch at Y-12, 4-0500; and Wyvetta Ratledge at ORGDG, 4-9875.

Highlights of Paducah's Secretaries Week—which has "Professional Purpose" as its theme—include, signing of the proclamation by Kentucky's Governor Julian Carroll and Paducah's Mayor William Murphy; a tour of Heublein distilleries; and a breakfast at the Holiday Inn. On April 21, WTSD-TV will feature Paducah chapter members on "Accent," a talk show. Participants include Frances Hamilton, NSA chapter president; Velva Blayney, chairman of Secretaries Week; and Mary Ellen Pfost, president of the Kentucky Division of NSA.

All week long, Secretaries Week displays will be at the Paducah Plant and in downtown stores. The store displays will feature prints of "Dignity and Poise," a painting commissioned by the Hopkinsville chapter of NSA.

Division staff assists at Three Mile Island

(Continued from page 1)

requested file videotape scenes of the system in action (made in a Y-12 documentary video program in 1977). The robot provided the lead story for the "CBS Evening News" program on April 4.

The manipulator system, built to Nuclear Division design specifications by a commercial vendor in 1966, consists of the mobile manipulator, its control console and a workroom-laboratory. The manipulator is designed to operate at distances up to 700 feet from the control console, to which it is attached by a cable. The manipulator is about five feet long, six feet high and about two and one-half feet wide. It has a mechanical hand capable of lifting 160 pounds and dragging 500 pounds. Two television cameras mounted behind the arm transmit pictures to monitors on the control console.

The manipulator system was obtained by Y-12 as a safety support

backup in operations involving the handling of toxic or radioactive materials in the plant. It has been used outside Oak Ridge on two previous occasions: to recover radioactive sources: at the University of Rochester in 1975 and the University of the South at Sewanee in 1976.

Daylight saving

It's time to set the clocks forward again. Sunday, April 29, 2 a.m. official time will go to 3 a.m. (Eastern Daylight Saving Time in the East Tennessee area and Central Daylight Saving Time in the Paducah area.)

Shift workers reporting to work Saturday will clock in on standard time, out on daylight saving time. We will stay on this schedule until late October.

Duggins named technical assistant

Baden C. Duggins has been named technical assistant to Donald B. Trauger, associate director for nuclear and engineering technologies at ORNL.

He will assist in the administration of programs in the nuclear and engineering technologies, which represent the largest single area of research and development at ORNL. These activities, supported by funds from DOE and other federal agencies, include both developmental and safety research on power generation from nuclear, fossil and various alternative energy sources.

Since 1974, Duggins has been the leader of the Process Systems Development Group in the Instrumentation and Controls Division (I & C). His assignments have included instrumentation for the Laboratory's reactors, irradiation experiments, the Aquatic Ecology Laboratory and, most recently, fuel reprocessing and refabrication.

In 1958, he joined the I & C Division after serving as an engineering officer in the Navy and working at the Georgia Institute of Technology's



Duggins

Engineering Experiment Station. He has been involved in all facets of instrumentation for process systems engineering while at ORNL.

A native of Greeneville, Tenn., Duggins received his undergraduate degree in electrical engineering from the University of South Carolina in 1952, and a master's degree in electrical engineering from the Georgia Institute of Technology in 1957.

Duggins and his wife, Mary, reside with their two children at 110 Colby Road, Oak Ridge.

the **Secretary**
AUGUST/SEPTEMBER 1978 75 CENTS



Dignity and Poise

'DIGNITY AND POISE' is the title of this print which the Paducah Chapter of NSA will be selling during Secretaries Week. To order, send \$15, plus Kentucky sales tax, and \$2.50 for postage and handling to: Holland House Gallery, Route 2, White Star Farm, Benton, Ky. 42025.

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