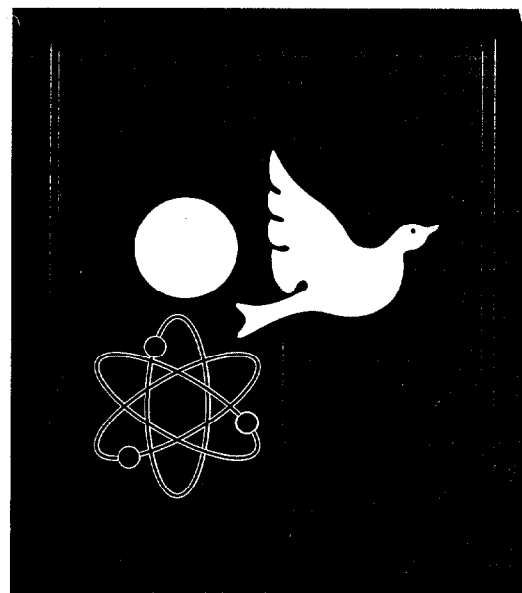


M-3113

MAY 12 1985

50th Anniversary



*Oak Ridge
National Laboratory
Plant and Equipment Division*



Managed by Martin Marietta Energy Systems, Inc.,
for the
United States Department of Energy

HISTORY OF THE PLANT AND EQUIPMENT DIVISION

George W. Oliphant, director, Plant and Equipment Division
J. L. Hammontree, associate director and superintendent, Plant Services Department
D. N. Smith, superintendent, Research Services Department
J. G. Whedbee, superintendent, Fabrication Department
W. W. Pope, superintendent, Utilities Operations
J. L. Brown, superintendent, Industrial Engineering

Compiled by C. H. Abner, V. T. Carmony, J. R. Hensley, D. N. Smith,
J. J. Varagona, G. B. Young, and Peggy Geldmeier

Date Published-December 1993

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TABLE OF CONTENTS

Introduction	1
Plant Services Department	14
Fabrication Department	26
Utilities Department.	41
Research Services Department.	50
Industrial Engineering Department.	57
P&E Accomplishments.	63
Personalities..8 5

PLANT AND EQUIPMENT DIVISION

INTRODUCTION

Through the years, Plant and Equipment (P&E) Division personnel have provided both technical and craft support for all major facilities, programs, and projects at Oak Ridge National Laboratory (ORNL). The work has been and continues to be challenging and rewarding.

The precursor of ORNL's P&E Division was established in 1943. The basic missions of providing support and services for Laboratory programs and maintenance support for Laboratory facilities and grounds have not significantly changed from the division's inception. Although the faces of our staff members have changed throughout the years, our people have been and remain our most important asset. The division's successes have been and are directly attributable to the dedication and positive attitude of these staff members.

Organizational spin-offs from P&E Division have resulted in significant organizations important to Laboratory programs. In 1953, Instrument and Controls (I&C) Division was formed from portions of the Division. In 1964, General Engineering and Construction Division was formed from the Design and Construction departments of P&E Division.

Changes have been very evident in P&E Division through the years. Changes in personnel have been constant. Many names and faces we now fondly remember. Changes in work methods, technology, and Laboratory facilities have rapidly increased in complexity. These trends continue today. May the opportunities for growth and challenge remain for our future employees.

The P&E Division currently has responsibility for providing support for all the Laboratory's complex and varied research programs, for providing maintenance support for buildings and grounds throughout the Laboratory, and for managing the operation and maintenance of the Steam Plant and power and utilities systems. These services are provided through four major departments: Fabrication, Research Services, Plant Services, and Utilities. These departments are supported by other groups including Industrial Engineering and Training.

Support functions provided by the division include in-cell welding, vacuum systems, pressure vessel code work, glass blowing, manipulator repair, specialized fabrication, vehicle and heavy equipment maintenance, and reactor support.

P&E Division has made many contributions to successful Laboratory programs. One of the most important and most notable was the Tiger Team's visit during the fall of 1990. P&E Division's role in preparations for and support of the Tiger Team resulted in recognition for noteworthy practices in Occupational Safety And Health Act (OSHA) and for the improvements made in the Steam Plant. The outstanding support efforts of staff members were further rewarded when P&E Division was selected as one of two ORNL divisions to receive the Laboratory Director's Award for 1991.

This brief history of the ORNL P&E Division is intended to be a picture book of the people who have worked here and contributed to our programs. Our history is our people.

Division Directors and Managers

This is the evolution of the P&E Division and its superintendents and directors from 1944 until 1992 as determined from organization charts, Laboratory newspapers, and other sources.

February 1944-1946	A. J. Schwertfeger, works engineer
August 1946-June 1947	R. C. Thurmsler, plant manager
June 1947-December 1947	W. E. Weiner, Research Engineering Division J. S. Putnam, Plant Engineering Division
January 1948-January 1949	J. C. Stewart, Engineering, Maintenance, and Construction Division
January 1949-January 1950	W. D. Lavers, Engineering and Maintenance Division
February 1950-July 1954	D. W. Cardwell, Engineering and Maintenance Division
July 1954-June 1958	D. W. Cardwell, Engineering and Mechanical Division
July 1958-July 1963	H. E. Seagren, Engineering and Mechanical Division
July 1963-May 1978	H. E. Seagren, P&E Division
July 1978-Present (1992)	G. W. Oliphant, P&E Division



James C. Stewart

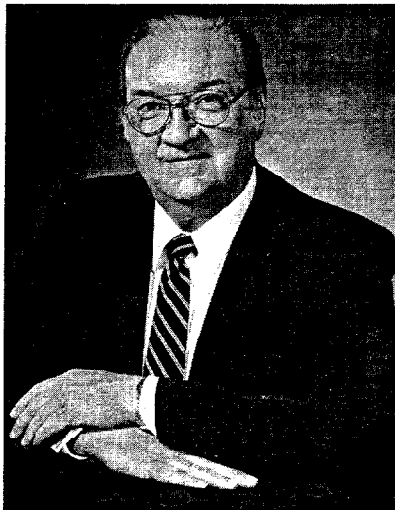


W. Douglas Lavers

**Biographical
Sketches of
Directors and
Superintendents**



David W. Cardwell



George W. Oliphant



Harry E. Seagren

No information was available for A. J. Schwertfeger, R. C. Thurmser, W. E. Weiner, or J. S. Putnam other than that recorded on the organization charts.

James C. Stewart

Superintendent of Engineering, Maintenance, and
Construction Division
January 1948 to January 1949

James Stewart became superintendent of the Engineering, Maintenance, and Construction (EM&C) Division on January 1, 1948, and served in this capacity until he became project engineer for the Laboratory executive director, Claude Nelson **Rucker**, on January 31, 1949.

Stewart came to Oak Ridge in January 1944 as a major with the U.S. Army Corps of Engineers assigned to the Manhattan District. He left military service in February 1946 and became project engineer at Carbide and Carbon Chemicals Corporation, Texas City, Texas. In July of the same year, he returned to Oak Ridge, Tennessee, and became affiliated with the Atomic Energy Commission (AEC) as assistant chief of the **Construction** Division and served in that capacity until he transferred to the position of AEC operations officer at Clinton Laboratories in June 1947.

Stewart, a native of Bisbee, Arizona, was awarded his bachelor of science degree in mechanical engineering at the University of Arizona in 1934. His engineering career took him first to the Phelps Dodge Mining Corporation at Bisbee. In 1935 and 1936, he served with the Army as second lieutenant advisory engineer with the Civilian Conservation Corps (CCC). In 1936 and 1937, he was general superintendent in the design, construction, and operation of a mine and mill for mining and processing copper ore for the Lepanto Consolidated Mining Company on Luzon Island in the Philippines. From November 1937 to February 1939, he was with the Hawaiian Contracting Company in Honolulu. Upon returning to the states, he joined a general contractor, the firm of Robert E. McKee, working on several building projects in Dallas, Texas, and Los Angeles and San Francisco, California. He went on active duty with the Army Constructing Quartermaster, and, while affiliated with that organization and the U.S. Corps of Engineers, he was involved in the construction of Army facilities in the Midwest.

Stewart was a member of Tau Beta Pi (honorary scholastic engineering society), Kappa Sigma (college social fraternity), and the American Society of Mechanical Engineers (professional organization).

His wife, Lois Cameron, was from El Paso, Texas. They were married in May 1937 in Manila, Philippine Islands. Their three children are Betty (born in Honolulu), James (born in Santa Monica, California), and Lois Ann (born in Oak Ridge).

(Sources: *The News*, Oak Ridge National Laboratory, Friday, October 29, 1948; *The News*, Oak Ridge National Laboratory, Friday, February 11, 1949.)

W. Douglas Lavers

Superintendent of Engineering and
Maintenance Division
January 1949 to January 1950

W. Douglas Lavers was appointed general superintendent of the Engineering and Maintenance (E&M) Division January 31, 1949, to succeed James C. Stewart.

Lavers, originally from Massachusetts, received his bachelor of civil engineering degree from Northeastern University in 1926 and began his engineering career with Alonzo B. Reed, a consulting engineer of Boston, Massachusetts. From 1926 to 1933, he was field engineer in hydroelectric and industrial construction with Stone and Webster Engineering Corporation. Next, he worked with the Forstmann Woolen Company of Passaic, New Jersey, constructing steam generating stations and mill buildings. Later, he worked on dam building projects for the Tennessee Valley Authority (TVA).

In 1943, he became department superintendent of refining processes at Y-12, later becoming E&M Division superintendent. On February 1, 1950, Lavers became Y-12 area superintendent, yielding his position to David W. C-u-dwell.

He was president of the Oak Ridge subsection of the American Society of Civil Engineers. His other interests were the Oak Ridge Golf and Country Club, where he served as president, and the Oak Ridge Dance Club.

He married Vashti Compton of Shawnee, Oklahoma, in 1936. Their three children are Lawrence, Donald, and Richard.

(Sources: *The News*, Oak Ridge National Laboratory, Friday, February 11, 1949; *The News*, Oak Ridge National Laboratory, Friday, January 17, 1950.)

David W. Cardwell

Superintendent of Engineering and
Maintenance Division/Engineering and
Mechanical Division
February 1950 to July 1954/July 1954 to June 1958

On February 1, 1950, Dave Cardwell became superintendent of the E&M Division (in 1954 this became the Engineering & Mechanical Division), succeeding W. D. Lavers. He was serving as Lavers' assistant at the time of this appointment. Earlier he served in a dual capacity as Instrument Department superintendent and assistant division superintendent with J. C. Stewart.

In March 1947, Cardwell came from the Y-12 Plant to the Laboratory's Physics Division. He worked on the servomechanism controls for the high-flux pile (materials testing reactor) that was to be built in Arco, Idaho. In March 1948, he became superintendent of the Instrument Department of E&M Division; in January 1949, he became E&M's assistant superintendent.

Cardwell, a native of Columbia, South Carolina, graduated from the University of South Carolina with a bachelor of science degree in electrical engineering. Later, while working with the U.S. Soil

Conservation Service at Blacksburg, Virginia, he earned his master of science degree in agricultural engineering (with a minor in civil engineering) from Virginia Polytechnic Institute. He also had training in electronic and radio engineering.

In 1934, soon after receiving his bachelor's degree, he worked with the U.S. Soil Conservation Service at Spartanburg, South Carolina. He was instrumental in the design and construction of its hydraulic laboratory, and later he was placed in charge of the facility. In 1936, he became assistant to the regional engineer of the Soil Conservation Service (consultant) working with project engineers in seven Southeastern states on problems of water-conveying structures.

In March 1943, **Cardwell** joined the engineering staff of Tennessee Eastman Corporation and was sent immediately to the University of California Radiation Laboratory at Berkeley to assist in the development of electronic equipment that was later used in the electromagnetic separation process at the Y-12 Plant. In July 1943, he transferred from Berkeley to the Y-12 Plant where **he** became responsible for the maintenance of beta process and power equipment in 1945. He moved from Y- 12 to the Laboratory in 1947.

Dave held memberships in Sigma Nu (college social fraternity), Omicron Delta Kappa (honor scholastic society), the American Society of Electrical Engineers (ASEE), and the Instrument Society of America (professional societies). He helped organize the subsection of ASEE for Oak Ridge.

Cardwell was active in community affairs. He helped establish the United Church and served as a trustee and as a member of the board of directors. He was also a member of the advisory board of the Oak Ridge Welfare Services Department.

In 1936, he married Juanita Johnson of Spartanburg, South Carolina. Their two children are Martha and David.

(Source: *The News*, Oak Ridge National Laboratory, Friday, January 17, 1950.)

Harry E. Seagren

**Superintendent of Engineering and
Mechanical Division/Plant and Equipment Division
July 1958 to July 1963/July 1963 to May 1978**

Harry E. Seagren, a native of Nebraska, received his bachelor of science degree in chemical engineering from the University of Nebraska in 1947 and joined Clinton Laboratories on June 30, 1947. By March of the next year, he had advanced to supervisor in the Pile Department (Graphite Reactor/X- 10 Reactor) of Operations Division.

On April 12, 1948, the Laboratory shift supervisors organization was created with Seagren being one of the five original people. In February 1952, he was assistant to the Laboratory executive director (services), Logan B. Emlet, and he was on staff of the Laboratory director, C. E. Larson, from July 1953 to about mid-1955.

Seagren went to K-25 on special assignment, and in January 1957, he became superintendent of the Operations Division, then superintendent of the newly formed Isotopes Division in July 1957

(after it broke away from the Operations Division), and, finally, superintendent of the Engineering and Mechanical Division (later to become Plant and Equipment) from July 1958 until his death on May 11, 1978.

He was a member of the American Institute of Chemical Engineers (AIChE) and the American Institute of Plant Engineers (AIPE). In 1973, he received the “Plant Engineer of the Year” award from the Knoxville AIPE chapter.

Seagren lived in the West Hills area of Knoxville with his wife, Ruth. Their three children are Russell, Linda, and Christine.

(Sources: Organization charts, Laboratory newspapers, J. H. Greene, Peggy Geldmeier, and J. A. Cox.)

George W. Oliphant

Director of Plant and Equipment Division
July 1978 to Present (1992)

On July 3, 1978, George Oliphant became the director of the P&E Division, succeeding the late Harry E. Seagren. At the time of his appointment, Oliphant was superintendent of the Maintenance Division’s Electrical and Electronics Department at the Y- 12 Plant; he had held this position since 1964.

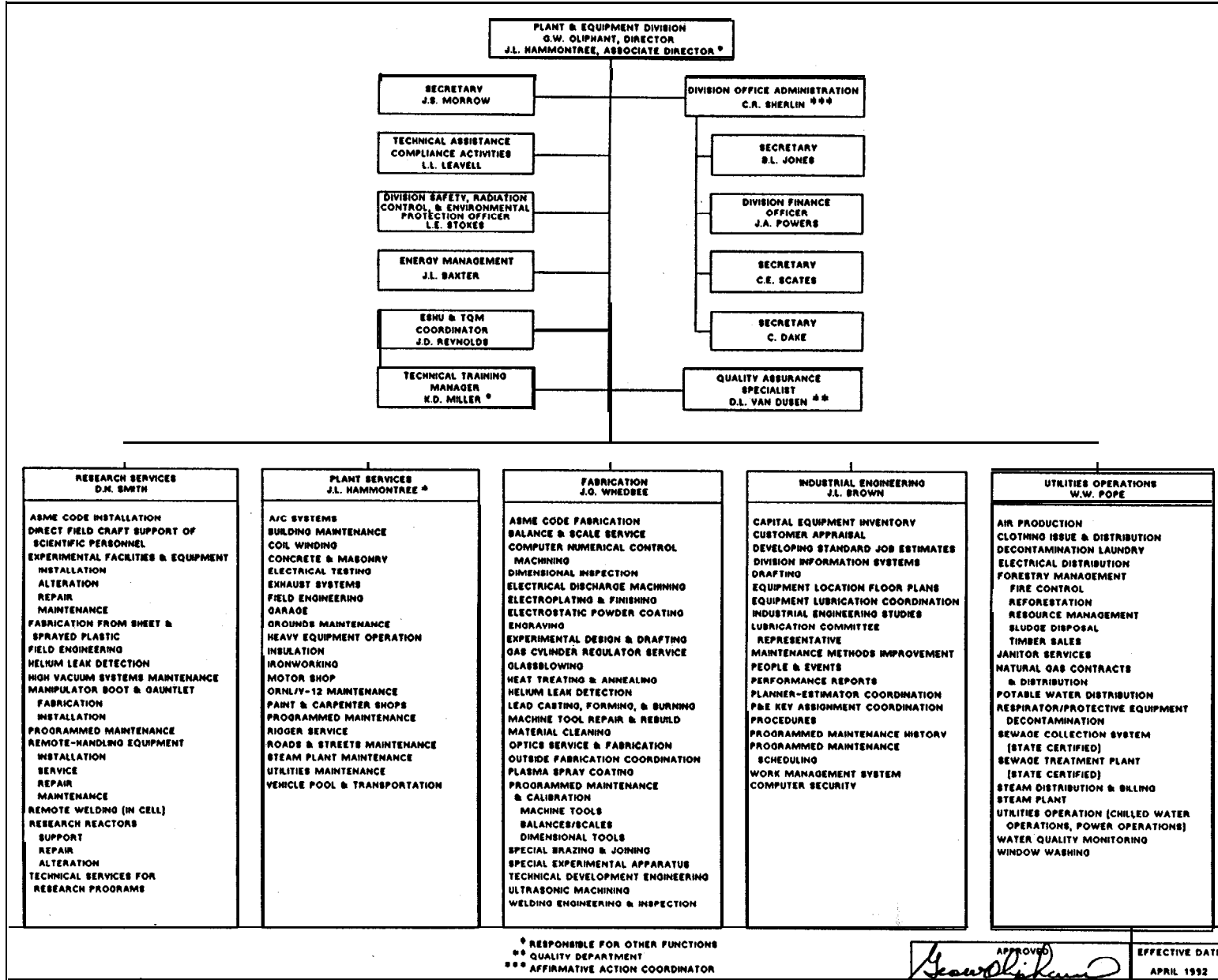
Oliphant is a native of Riceville, Tennessee. He received his bachelor of science degree in electrical engineering and his master’s degree in industrial engineering and management from the University of Tennessee.

Before joining the Y-12 Plant staff in 1948, he taught electrical engineering at the University of Tennessee. He has worked as an electrical engineer, maintenance general foreman, plant shift supervisor, and head of the Research Services Department.

Oliphant was coordinator of the four-plant Energy Conservation Committee and has served as chairman of the Y-12 Plant OSHA Action/Priority Committee. He is a member of the Institute of Electrical and Electronics Engineers and the Energy Conservation Society.

Oliphant’s wife is Chris Sparkman of Sparta, Tennessee. Their three sons are David, Greg, and Steve. His activities away from work include the board of trustees of Tennessee Wesleyan College, numerous church related responsibilities, and hunting trips.

(Source: *Nuclear Division News*, July 8, 1978.)



Current Plant and Equipment organizational chart.



Plant and Equipment Division managers (November 1965 United Fund campaign): L. F. Ueber, maintenance superintendent; G. F. R. Johnson, Operation Analysis Department; H. H. Nichol, Maintenance Department (assistant); W. A. Blevins, Fabrication Department (assistant); H. E. Seagren, division superintendent; A. J. Cook Materials Department; E. A. Davis, Buildings and Utilities Services; K. E. Jamison, Field Engineering; and J. E. Longendorter, Fabrication superintendent.



◀ A few of the Laboratory personnel who worked at the Pile Building, Graphite Reactor, Building 105 (now 3001) in November 1943 when it began operating. They are: kneeling, left to right, James Kirk, Ray E. Oakes, Ross Pesterfield and Hugh C. Humphrey; middle row, Logan B. Emler, J. L. Kidwell, W. W. Newman, Fred Anderson, Fred Egner, F. J. Ball, and Arthur Rupp; back row, Charles Clifford, Allen A. Weems, John Oliver, Roy Hartman, and Fred Eggers (Photo year 1948).



▲ Atomic Trades and Labor Council Officers for 1950: T. R. Stokely, trustee; J. J. Horton, secretary-treasurer; J. W. Eiler, vice president; T. A. Jacques, president, A. J. Metzger, recording secretary, E. Wilkins, trustee; and Paul Hornsby, sergeant at arms, Not pictured: J. D. Kees, trustee, and B. L. Connell, job bid officer.

Wage Agreement Signed- Representatives of Carbide and Carbon Chemicals Company and the Atomic Trades and Labor Council are shown as they sign a new wage agreement on November 29, 1951. Seated, left to right: Jerry Truett, ATLC job bid officer; J. L. Horton, secretary and treasurer; J. C. Wilson, recording secretary; Theodore Silvey, ATLC vice president; Joseph D. Eiler, ATLC president; Kenneth L. Scott, AFL coordinator; C. E. Larson, director of ORNL; Kenneth A Fowler, superintendent of Industrial Relations Division; Robert H. Beidel, Labor Relations Department. Standing, left to right, are chief stewards George McMillon, H. H. Ely, E. S. Clark, S. B. Warden, Rufus Blackburn, Mac C. Smith, C. D. Wicker, R. A. Francis, J. C. Maxwell, H. E. Carson, and Ira Perryman (1951).





A **Harry Nichol's 25-year recognition.** First row: Gerald F. R. Johnson, Elaine Collins, Betty Jo Jones, Harry H. Nichol, Ada Faith Misek Peggy Geldmeier. Second row: Sheila Brooks, Joanne Luckett, Jean Redden, Vada Jones, Gerry Roberts, Wesley Benton, Ed A. Davis, Richard E. Peden, Hobart H. Haymond. Third row: H. Brooks Bowen, William H. Longaker, Ben B. Smith, Cary C. Morgan, T. L. Miller, Russell S. Jackson, Perry W. Hembree. Fourth row: Joe J. Varagona, A. Larry Allen, Stanley R. Larkins, Robert M. Famham, Ray H. Winget, R. J. DeBakker. Fifth row: Julian R. Gissel, Russ J. Jenness, Johnny R. Keys, John W. Loy, C. E. (Red) Clayton. Standing: John W. Fields, Tom E. Diggs, Bill Piper, Dvon Brogan, C. Robert Sherlin, M. A. (Bud) Baker, Ken E. Jamison, William F. Buker, Harry E. Seagren, Vernon E. Moore, Neal E. Dunwoody, Carl L. Fox (1972).



◀ Harry Seagren presents certificate and clock to Vada Jones for 25 years of service with Union Carbide Corporation at ORNL (1968).

Ray **Winget**, the division safety officer, with secretaries of the division on the celebration of his twenty-five years of service with Union Carbide Corporation. The women are Clara Stowell, Frances East, Peggy Geldmeier, Ada Misek Jean Redden, Joanne Luckeit, Betty Jo Jones, and Sheila Tilley Brooks (1971).



Hot Cell Manipulator Booting Fabricated By P & E Division

By BILL FELKNOR
Oak Ridge National Laboratory's Plant and Equipment Division, in collaboration with the Y-12 Development Division, has perfected a method of fabricating hot cell boots with several times the service life previously used. The radiation- and tear-resistant boots are made of urethane rubber, and used to protect the manipulator arms from contamination within the hot cell areas. ORNL's versatile method has been used in a variety of applications—includes removable coatings on reactor penetrations, field products was a necessary prerequisite for making a reactor now is capable of repairing a great many other rubber parts using a continuing inventory of masterpieces at ORNL's Research Service. The most serious manipulator damage recognized that a protection program was needed that was reliable.

P & E Craftsmen Undergo Training For MSRE Remote Maintenance

Repair work on the Molten Salt Reactor Experiment will be performed by specially trained craftsmen from Plant and Equipment Division when the reactor shuts down in May. Twenty-five skilled craftsmen and five foremen are presently attending training classes in remote maintenance skills to prepare them for the exacting work of repairing and maintaining MSRE. Electricians, pipefitters, millwrights, riggers and operators are receiving training.

The training, conducted by Robert Blumberg of Reactor Division, consists of lectures, demonstrations and practice sessions. Harry Schaffer said that the event of a serious shaft.

First Of Its Kind Within Union Carbide ORNL Apprenticeship Program Marks Twentieth Anniversary

This week marks the 20th anniversary of the ORNL Apprenticeship Program, a personnel advancement opportunity by which, since 1948, 240 employees have completed a period of training and study which qualifies them to be admitted as journeymen in their crafts. Four out of five of these craftsmen are still employed at the Laboratory as engineering aides, technicians, foremen and engineers, as well as journeymen.

Phyllis Hazzard—ORNL's First Lady Glassblower Since 1945

By BARBARA LYON
Phyllis Hazzard, ORNL's first lady glassblower since 1945, is still working in her class. She emerged as a qualified apprentice glassblower in her class.

Thorough Training Offered 25 Complete Tenth Apprentice Program; Training Nears 18th Year of Operation

Oak Ridge National Laboratory's Apprenticeship Program graduated its 10th class recently with 25 graduates representing five crafts receiving certificates of completion. Since the inception of the program almost 18 years ago (October 31, 1948), more than 200 employees have satisfactorily completed their apprenticeships.

New Neutron Spectrometers at HFIR Provide Advanced Research Facilities

By BARBARA LYON
Computer-controlled neutron scattering facilities have been installed at three of the four horizontal beam holes of the High Flux Isotope Reactor (HFIR). These massive neutron spectrometers, which have been under development for three years, were constructed in the shops of four Union Carbide plants—three in Oak Ridge (ORNL, Y-12, ORGDP) and one in Paducah. They will be used with very high-intensity neutron provided by HFIR, experiments that have been possible.

Provides Alternate Mine Exit 'Salt Vault' Emergency Escape Device Designed, Built By ORNL Personnel

By R. L. WESLEY
Oak Ridge National Laboratory personnel have designed and built an escape device that can be used in situations to remove personnel from the Kansas. The mine, owned by the Laboratory to conduct radioactive waste experiments. The escape device is used by the Laboratory to conduct experiments. The escape device is used by the Laboratory to conduct experiments.

Eliminates Need For Trial Welds ORNL-Developed Welding Programmer Produces Repeat Action With Accuracy

By C. M. SMITH
A welding programmer capable of producing and duplicating precise welds over extended periods of time has been developed by Plant and Equipment Division's Fabrication Department in collaboration with Instrumentation and Controls Division. The programmer, working in combination with a control system, can be set to exactly repeat welds with the accuracy of a gun. The programmer is a general-purpose device that can be used in a wide variety of shop uses. The programmer is a general-purpose device that can be used in a wide variety of shop uses.

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Apprentice Machinist Cited For Suggestion

C. A. Murrin, third-year machinist apprentice, Plant and Equipment Division, has been recognized by his supervisor for finding a way to use two hands and a magnet to safely do what previously required four hands.

From an employee communications standpoint, P&E Division activities have always been newsworthy.

Plant services Department

The Plant Services Department provides building electrical; heating, ventilating, and air-conditioning (HVAC); grounds; utility; and vehicle maintenance plus transportation and miscellaneous support services for all divisions at the X-10 Site. In addition, the Plant Services Department provides coordination of maintenance services supplied by the Y-12 Plant for the ORNL divisions located at Y-12.

Functions of Plant Services Department have been performed through the years by groups operating under various names. In February 1944, operating as Clinton Laboratories by E. I. DuPont de Nemours Company for the University of Chicago, they were performed by Maintenance Department managed by K. D. Wallace and Transportation and Traffic Department managed by F. C. Rose, Jr.

In November 1946, when ORNL was operated by Monsanto Chemical Company, the Plant Services' duties were being performed by a Mechanical Department managed by J. S. Putnam. By March 1947, the names Paul Bass, Joe **Brandon**, Zell Delay, Fred Egner, Roy Hartman, Stan Hornbaker, Russ Jackson, Ken Jamison, John Mayfield, Harry Nichol, John Oliver, Jack Packard, Sam Prince, and Baker Van Horn—names familiar to P&E Division veterans—began to appear on organization charts. The groups were organized as Shop and Field Services (managed by F. W. Clay) and Labor and Transportation Services (managed by W. E. Dougher, who reported to E. P. Cunningham).

In March 1948, operating as the Oak Ridge National Laboratory and managed by Carbide and Carbon Chemicals Corporation, Plant Services' tasks were performed by the Mechanical Department under the leadership of F. W. Clay. By January 1951, E. W. Parrish was superintendent of the Mechanical Department. New names on the organization chart included John Agee, Fred Anderson, A. Brewer, C. E. Clayton, H. Davidson, E. A. Davis, Bill Felknor, T. A. Jacques, and J. R. McKnight. In August 1959, the department was reorganized to include a Fabrication and Field Services Department managed by E. W. Parrish with Harry Nichol in charge of field services, Julian Gissel in charge of plant services, and Ed Davis in charge of electrical services.

The following changes occurred from July 1963 to the present: July 1963—the P&E Division was formed with a Services Department managed by L. F. Lieber; January 1964—the name of the department was changed to Maintenance Department; July 1964—the Plant Services Department was formed and was managed by E. A. Davis, who reported to Lieber, and a facilities maintenance department, headed by H. F. Keesee who reported to Davis; January 1966—the various Maintenance and Field Service departments were reporting directly to Lieber, who served as head of the Maintenance Department; January 1967—the department name had been changed to the Maintenance and Plant Services Department; February 1968—J. E. Longendorfer was supervisor of Maintenance and Plant Services; 1973—K. E. Jamison was head of the Maintenance Services Department and served in that capacity until September 1979. H. H. Nichol served as department head from September 1979 until his death in February 1980; D. N. Smith from March 1980 until February 1981; C. L. Fox from February 1981 until July 1988; and J. L. Hammontree from July 1988 until the present.

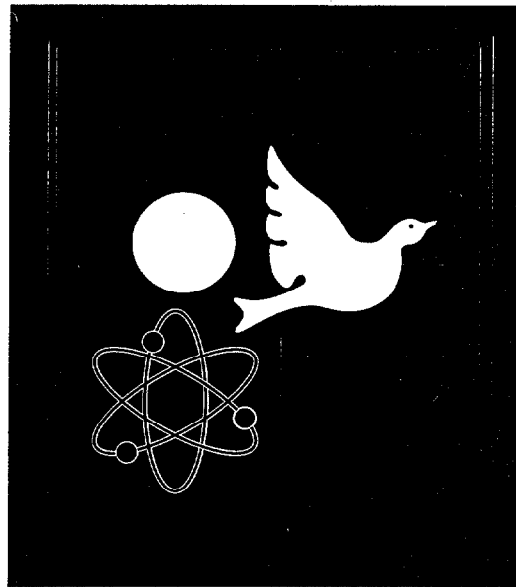
The Plant Services Department currently comprises three departments:

- Building and Utility Services provides roof maintenance, building maintenance and alterations, interior and exterior painting, insulation work and asbestos removal, maintenance of the Steam Plant and its outside utility piping, maintenance of inside utility systems, maintenance of waste systems, and sign painting.
- Transportation and Support Services provides maintenance on all autos, trucks, and heavy equipment; fabrication and installation of ironwork; all rigging and transportation services; road and grounds maintenance; landscape maintenance and pest control; waste and salvage material pickup; and labor pool and moving services.
- Electrical, Air-Conditioning, furniture and equipment, and Heating Services provides for maintenance on all air conditioning equipment, all filtered exhaust systems not associated with reactors or hot cells, electrical distribution systems, building electrical systems, elevators and emergency generators, fire alarm systems, and specialized coil winding and transformer repairs.

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TABLE OF CONTENTS

Introduction	1
Plant Services Department	14
Fabrication Department	26
Utilities Department.	41
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Industrial Engineering Department.	57
P&E Accomplishments.	63
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The P&E Division currently has responsibility for providing support for all the Laboratory's complex and varied research programs, for providing maintenance support for buildings and grounds throughout the Laboratory, and for managing the operation and maintenance of the Steam Plant and power and utilities systems. These services are provided through four major departments: Fabrication, Research Services, Plant Services, and Utilities. These departments are supported by other groups including Industrial Engineering and Training.

Support functions provided by the division include in-cell welding, vacuum systems, pressure vessel code work, glass blowing, manipulator repair, specialized fabrication, vehicle and heavy equipment maintenance, and reactor support.

P&E Division has made many contributions to successful Laboratory programs. One of the most important and most notable was the Tiger Team's visit during the fall of 1990. P&E Division's role in preparations for and support of the Tiger Team resulted in recognition for noteworthy practices in Occupational Safety And Health Act (OSHA) and for the improvements made in the Steam Plant. The outstanding support efforts of staff members were further rewarded when P&E Division was selected as one of two ORNL divisions to receive the Laboratory Director's Award for 1991.

This brief history of the ORNL P&E Division is intended to be a picture book of the people who have worked here and contributed to our programs. Our history is our people.

Division Directors and Managers

This is the evolution of the P&E Division and its superintendents and directors from 1944 until 1992 as determined from organization charts, Laboratory newspapers, and other sources,

February 1944-1 946	A. J. Schwertfeger, works engineer
August 1946–June 1947	R. C. Thurmser, plant manager
June 1947–December 1947	W. E. Weiner, Research Engineering Division J. S. Putnam, Plant Engineering Division
January 1948–January 1949	J. C. Stewart, Engineering, Maintenance, and Construction Division
January 1949–January 1950	W. D. Lavers, Engineering and Maintenance Division
February 1950–July 1954	D. W. Cardwell, Engineering and Maintenance Division
July 1954–June 1958	D. W. Cardwell, Engineering and Mechanical Division
July 1958–July 1963	H. E. Seagren, Engineering and Mechanical Division
July 1963–May 1978	H. E. Seagren, P&E Division
July 1978–Present (1992)	G. W. Oliphant, P&E Division



James C. Stewart



W. Douglas Lavers

**Biographical
Sketches of
Directors and
Superintendents**



David W. Cardwell



George W. Oliphant



Harry E. Seagren

No information was available for A. J. Schwertfeger, R. C. Thurmser, W. E. Weiner, or J. S. Putnam other than that recorded on the organization charts.

James C. Stewart

Superintendent of Engineering, Maintenance, and
Construction Division
January 1948 to January 1949

James Stewart became superintendent of the Engineering, Maintenance, and Construction (EM&C) Division on January 1, 1948, and served in this capacity until he became project engineer for the Laboratory executive director, Claude Nelson **Rucker**, on January 31, 1949.

Stewart came to Oak Ridge in January 1944 as a major with the U.S. Army Corps of Engineers assigned to the Manhattan District. He left military service in February 1946 and became project engineer at Carbide and Carbon Chemicals Corporation, Texas City, Texas. In July of the same year, he returned to Oak Ridge, Tennessee, and became affiliated with the Atomic Energy Commission (AEC) as assistant chief of the Construction Division and served in that capacity until he transferred to the position of AEC operations officer at Clinton Laboratories in June 1947.

Stewart, a native of Bisbee, Arizona, was awarded his bachelor of science degree in mechanical engineering at the University of Arizona in 1934. His engineering career took him first to the Phelps Dodge Mining Corporation at Bisbee. In 1935 and 1936, he served with the Army as second lieutenant advisory engineer with the Civilian Conservation Corps (CCC). In 1936 and 1937, he was general superintendent in the design, construction, and operation of a mine and mill for mining and processing copper ore for the Lepanto Consolidated Mining Company on Luzon Island in the Philippines. From November 1937 to February 1939, he was with the Hawaiian Contracting Company in Honolulu. Upon returning to the states, he joined a general contractor, the firm of Robert E. McKee, working on several building projects in Dallas, Texas, and Los Angeles and San Francisco, California. He went on **active** duty with **the** Army Constructing Quartermaster, and, while affiliated with that organization and the U.S. Corps of Engineers, he was involved in the construction of Army facilities in the Midwest.

Stewart was a member of Tau Beta Pi (honorary scholastic engineering society), Kappa Sigma (college social fraternity), and the American Society of Mechanical Engineers (professional organization).

His wife, Lois Cameron, was from El Paso, Texas. They were married in May 1937 in Manila, Philippine Islands. Their three children are Betty (born in Honolulu), James (born in Santa Monica, California), and Lois Ann (born in Oak Ridge).

(Sources: *The News*, Oak Ridge National Laboratory, Friday, October 29, 1948; *The News*, Oak Ridge National Laboratory, Friday, February 11, 1949.)

W. Douglas Lavers

Superintendent of Engineering and
Maintenance Division
January 1949 to January 1950

W. Douglas Lavers was appointed general superintendent of the Engineering and Maintenance (E&M) Division January 31, 1949, to succeed James C. Stewart.

Lavers, originally from Massachusetts, received his bachelor of civil engineering degree from Northeastern University in 1926 and began his engineering career with Alonzo B. Reed, a consulting engineer of Boston, Massachusetts. From 1926 to 1933, he was field engineer in hydroelectric and industrial construction with Stone and Webster Engineering Corporation. Next, he worked with the Forstmann Woolen Company of Passaic, New Jersey, constructing steam generating stations and mill buildings. Later, he worked on dam building projects for the Tennessee Valley Authority (TVA).

In 1943, he became department superintendent of refining processes at Y-12, later becoming E&M Division superintendent. On February 1, 1950, Lavers became Y-12 area superintendent, yielding his position to David W. Cardwell.

He was president of the Oak Ridge subsection of the American Society of Civil Engineers. His other interests were the Oak Ridge Golf and Country Club, where he served as president, and the Oak Ridge Dance Club.

He married Vashti Compton of Shawnee, Oklahoma, in 1936. Their three children are Lawrence, Donald, and Richard.

(Sources: *The News*, Oak Ridge National Laboratory, Friday, February 11, 1949; *The News*, Oak Ridge National Laboratory, Friday, January 17, 1950.)

David W. Cardwell

Superintendent of Engineering and
Maintenance Division/Engineering and
Mechanical Division
February 1950 to July 1954/July 1954 to June 1958

On February 1, 1950, Dave Cardwell became superintendent of the E&M Division (in 1954 this became the Engineering & Mechanical Division), succeeding W. D. Lavers. He was serving as Lavers' assistant at the time of this appointment. Earlier he served in a dual capacity as Instrument Department superintendent and assistant division superintendent with J. C. Stewart.

In March 1947, Cardwell came from the Y-12 Plant to the Laboratory's Physics Division. He worked on the servomechanism controls for the high-flux pile (materials testing reactor) that was to be built in Arco, Idaho. In March 1948, he became superintendent of the Instrument Department of E&M Division; in January 1949, he became E&M's assistant superintendent.

Cardwell, a native of Columbia, South Carolina, graduated from the University of South Carolina with a bachelor of science degree in electrical engineering. Later, while working with the U.S. Soil

Conservation Service at Blacksburg, Virginia, he earned his master of science degree in agricultural engineering (with a minor in civil engineering) from Virginia Polytechnic Institute. He also had training in electronic and radio engineering.

In 1934, soon after receiving his bachelor's degree, he worked with the U.S. Soil Conservation Service at Spartanburg, South Carolina. He was instrumental in the design and construction of its hydraulic laboratory, and later he was placed in charge of the facility. In 1936, he became assistant to the regional engineer of the Soil Conservation Service (consultant) working with project engineers in seven Southeastern states on problems of water-conveying structures.

In March 1943, **Cardwell** joined the engineering staff of Tennessee Eastman Corporation and was sent immediately to the University of California Radiation Laboratory at Berkeley to assist in the development of electronic equipment that was later used in the electromagnetic separation process at the Y-1 2 Plant. In July 1943, he transferred from Berkeley to the Y-1 2 Plant where he became responsible for the maintenance of beta process and power equipment in 1945. He moved from Y-1 2 to the Laboratory in 1947.

Dave held memberships in Sigma Nu (college social fraternity), Omicron Delta Kappa (honor scholastic society), the American Society of Electrical Engineers (ASEE), and the Instrument Society of America (professional societies). He helped organize the subsection of ASEE for Oak Ridge.

Cardwell was active in community affairs. He helped establish the United Church and served as a trustee and as a member of the board of directors. He was also a member of the advisory board of the Oak Ridge Welfare Services Department.

In 1936, he married Juanita Johnson of Spartanburg, South Carolina. Their two children are Martha and David.

(Source: *The News*, Oak Ridge National Laboratory, Friday, January 17, 1950.)

Harry E. Seagren

Superintendent of Engineering and
Mechanical Division/Plant and Equipment Division
July 1958 to July **1963**/July 1963 to May 1978

Harry E. Seagren, a native of Nebraska, received his bachelor of science degree in chemical engineering from the University of Nebraska in 1947 and joined Clinton Laboratories on June 30, 1947. By March of the next year, he had advanced to supervisor in the Pile Department (Graphite Reactor/X-10 Reactor) of Operations Division.

On April 12, 1948, the Laboratory shift supervisors organization was created with Seagren being one of the five original people. In February 1952, he was assistant to the Laboratory executive director (services), Logan B. **Emlet**, and he was on staff of the Laboratory director, C. E. Larson, from July 1953 to about mid-1955.

Seagren went to **K-25** on special assignment, and in January 1957, he became superintendent of the Operations Division, then superintendent of the newly formed Isotopes Division in July 1957

(after it broke away from the Operations Division), and, finally, superintendent of the Engineering and Mechanical Division (later to become Plant and Equipment) from July 1958 until his death on May 11, 1978.

He was a member of the American Institute of Chemical Engineers (AIChE) and the American Institute of Plant Engineers (AIPE). In 1973, he received the "Plant Engineer of the Year" award from the Knoxville AIPE chapter.

Seagren lived in the West Hills area of Knoxville with his wife, Ruth. Their three children are Russell, Linda, and Christine.

(Sources: Organization charts, Laboratory newspapers, J. H. Greene, Peggy Geldmeier, and J. A. Cox.)

George W. Oliphant

Director of Plant and Equipment Division
July 1978 to Present (1992)

On July 3, 1978, George Oliphant became the director of the P&E Division, succeeding the late Harry E. Seagren. At the time of his appointment, Oliphant was superintendent of the Maintenance Division's Electrical and Electronics Department at the Y-12 Plant; he had held this position since 1964.

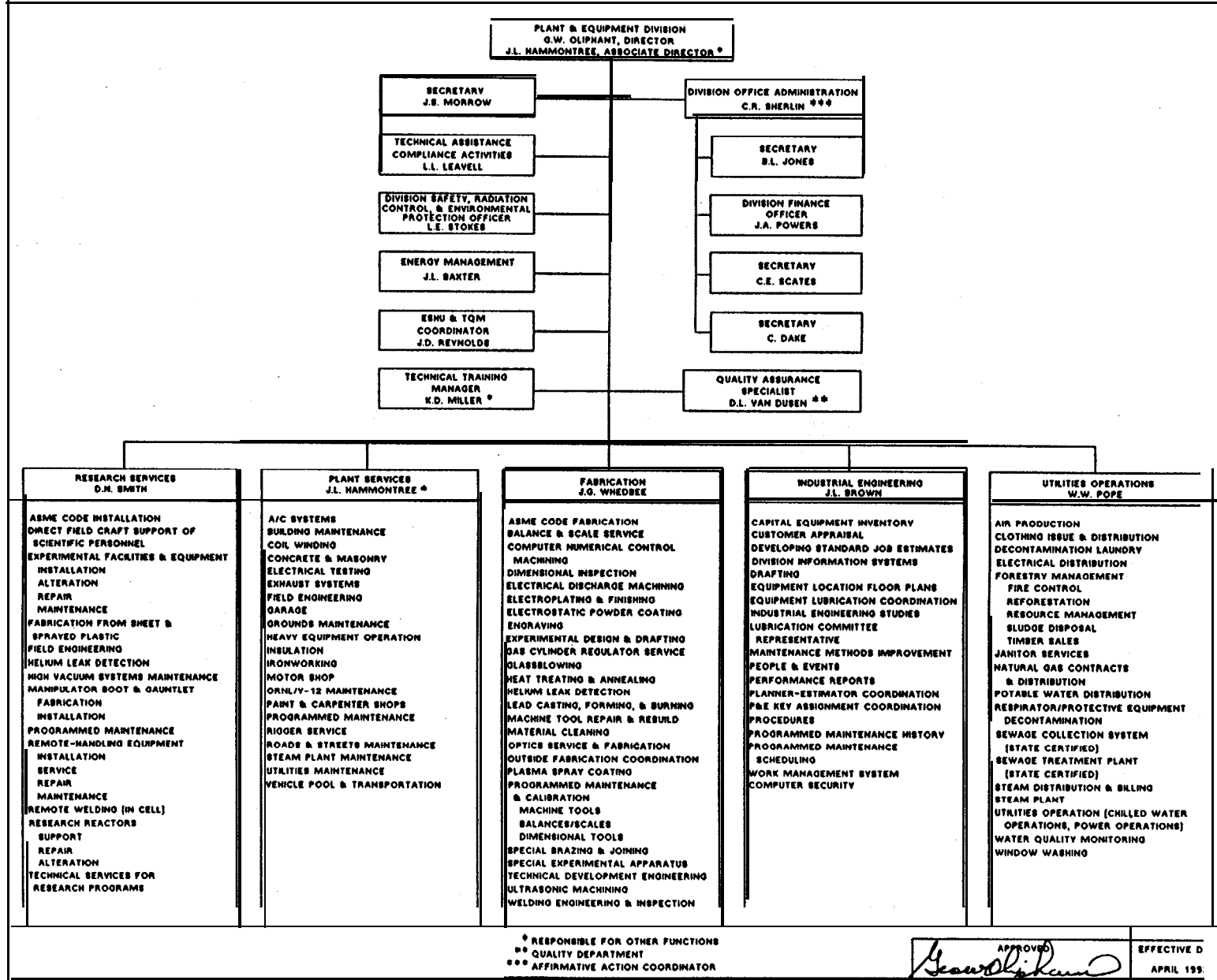
Oliphant is a native of Riceville, Tennessee. He received his bachelor of science degree in electrical engineering and his master's degree in industrial engineering and management from the University of Tennessee.

Before joining the Y-12 Plant staff in 1948, he taught electrical engineering at the University of Tennessee. He has worked as an electrical engineer, maintenance general foreman, plant shift supervisor, and head of the Research Services Department.

Oliphant was coordinator of the four-plant Energy Conservation Committee and has served as chairman of the Y-12 Plant OSHA Action/Priority Committee. He is a member of the Institute of Electrical and Electronics Engineers and the Energy Conservation Society.

Oliphant's wife is Chris Sparkman of Sparta, Tennessee. Their three sons are David, Greg, and Steve. His activities away from work include the board of trustees of Tennessee Wesleyan College, numerous church related responsibilities, and hunting trips.

(Source: *Nuclear Division News*, July 8, 1978.)



Current Plant and Equipment organizational chart.



Plant and Equipment Division managers (November 1965 United Fund campaign): L. F. Lieber, maintenance superintendent; G. F. R. Johnson, Operation Analysis Department; H. H. Nichol, Maintenance Department (assistant); W. A. Blevins, Fabrication Department (assistant); H. E. Seagren, division superintendent; A. J. Cook Materials Department; E. A. Davis, Buildings and Utilities Services; K. E. Jamison, Field Engineering; and J. E. Longendorfer, Fabrication superintendent.



◀ A few of the Laboratory personnel who worked at the Pile Building, Graphite Reactor, Building 105 (now 3001) in November 1943 when it began operating. They are: kneeling, left to right, James Kirk Ray E. Oakes, Ross Pesterfield and Hugh C. Humphrey; middle row, Logan B. Emlet, J. L. Kidwell, W. W. Newman, Fred Anderson, Fred Egner, F. J. Ball, and Arthur Rupp; back row, Charles Clifford, Allen A. Weems, John Oliver, Roy Hartman, and Fred Eggers (Photo year 1948).



Wage Agreement Signed- Representatives of Carbide and Carbon Chemicals Company and the Atomic Trades and Labor Council are shown as they sign a new wage agreement on November 29, 1951. Seated, left to right: Jerry Truett, ATLC job bid officer; J. L. Horton, secretary and treasurer; J. C. Wilson, recording secretary; Theodore Silvey, ATLC vice president; Joseph D. Eiler, ATLC president; Kenneth L. Scott, AFL coordinator; C. E. Larson, director of ORNL; Kenneth A Fowler, superintendent of Industrial Relations Division; Robert H. Beidel, Labor Relations Department. Standing, left to right, are chief stewards George McMillon, H. H. Ely, E. S. Clark, S. B. Warden, Rufus Blackburn, Mac C. Smith, C. D. Wicker, R. A. Francis, J. C. Maxwell, H. E. Carson, and Ira Perryman (1951).



▲ Atomic Trades and Labor Council Officers for 1950: T. R. Stokely, trustee; J. J. Horton, secretary-treasurer; J. W. Eiler, vice president; T. A. Jacques, president, A. J. Metzguer, recording secretary, E. Wilkins, trustee; and Paul Hornsby, sergeant at arms. Not pictured: J. D. Kees, trustee, and B. L. Connell, job bid officer.



A Harry Nichol's 25-year recognition. First row: Gerald F. R. Johnson, Elaine Collins, Betty Jo Jones, Harry H. Nichol, Ada Faith Misk Peggy Geldmeier. Second row: Sheila Brooks, Joanne Luckett, Jean Redden, Vada Jones, Gerry Roberts, Wesley Benton, Ed A. Davis, Richard E. Peden, Hobart H. Haymond. Third row: H. Brooks Bowen, William H. Longaker, Ben B. Smith, Cary C. Morgan, T. L. Miller, Russell S. Jackson, Perry W. Hembree. Fourth row: Joe J. Varagona, A. Larry Allen, Stanley R. Larkins, Robert M. Famham, Ray H. Winget, R. J. DeBakker. Fifth row: Julian R. Gissel, Russ J. Jenness, Johnny R. Keys, John W. Loy, C. E. (Red) Clayton, Standing: John W. Fields, Tom E. Diggs, Bill Piper, Dvon Brogan, C. Robert Sherlin, M. A. (Bud) Baker, Ken E. Jamison, William F. Buker, Harry E. Seagren, Vernon E. Moore, Neal E. Dunwoody, Carl L. Fox (1972).



◀ Harry Seagren presents certificate and clock to Vada Jones for 25 years of service with Union Carbide Corporation at ORNL (1968).

Ray **Winget**, the division safety officer, with secretaries of the division on the celebration of his **twenty-five** years of service with Union Carbide Corporation. The women are Clara Stowell, Frances East, Peggy Geldmeier, Ada Mizek Jean Redden, Joanne Lockett, Betty Jo Jones, and Sheila Tilley Brooks (1971).



Plant Services Department

The Plant Services Department provides building electrical; heating, ventilating, and air-conditioning (HVAC); grounds; utility; and vehicle maintenance plus transportation and miscellaneous support services for all divisions at the X-10 Site. In addition, the Plant Services Department provides coordination of maintenance services supplied by the Y-12 Plant for the ORNL divisions located at Y-12.

Functions of Plant Services Department have been performed through the years by groups operating under various names. In February 1944, operating as Clinton Laboratories by E. I. DuPont de Nemours Company for the University of Chicago, they were performed by Maintenance Department managed by K. D. Wallace and Transportation and Traffic Department managed by F. C. Rose, Jr.

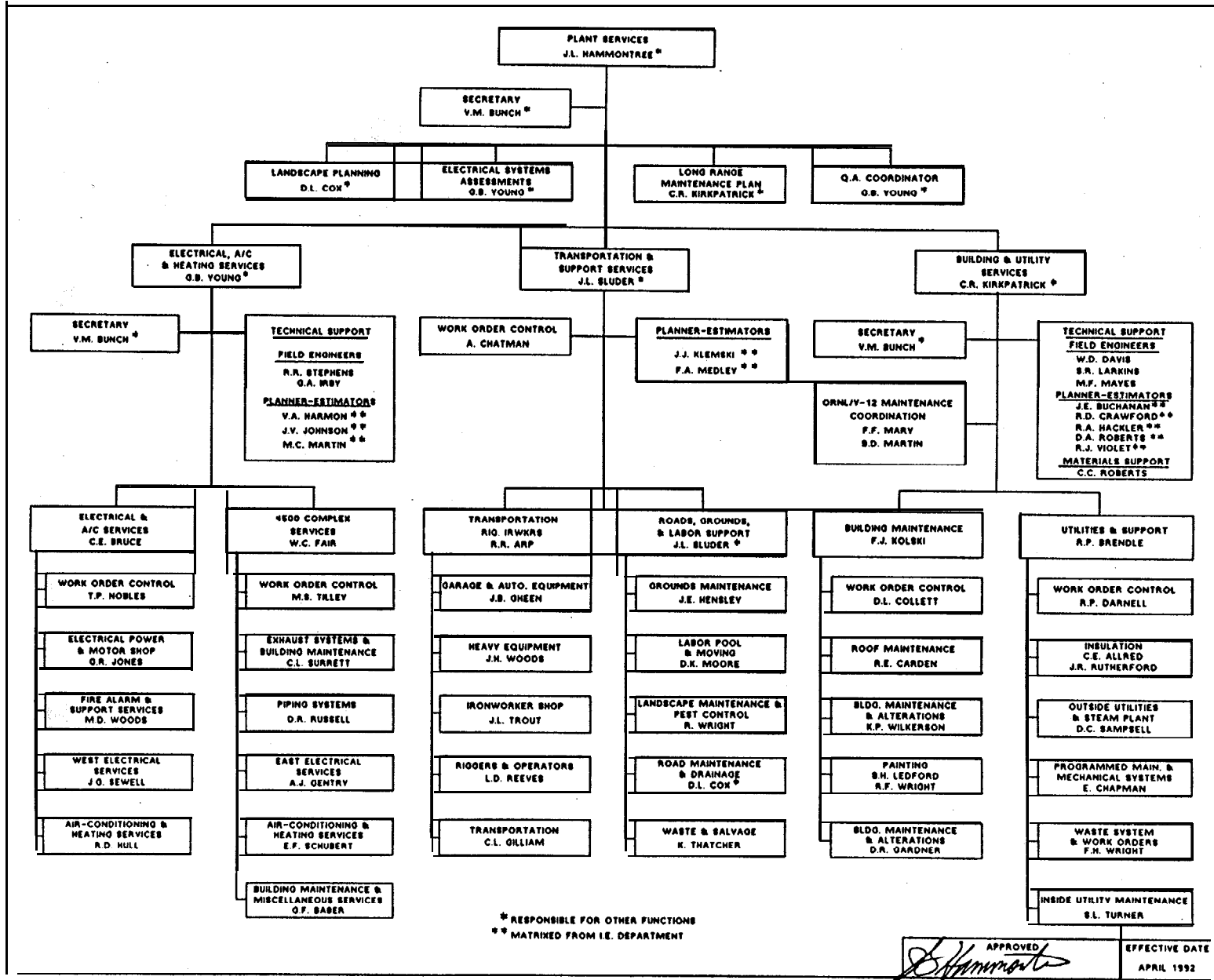
In November 1946, when ORNL was operated by Monsanto Chemical Company, the Plant Services' duties were being performed by a Mechanical Department managed by J. S. Putnam. By March 1947, the names Paul Bass, Joe **Brandon**, Zell Delay, Fred Egner, Roy **Hartman**, Stan Hornbaker, Russ Jackson, Ken Jamison, John Mayfield, Harry Nichol, John Oliver, Jack Packard, Sam Prince, and Baker Van Horn—names familiar to P&E Division veterans—began to appear on organization charts. The groups were organized as Shop and Field Services (managed by F. W. Clay) and Labor and Transportation Services (managed by W. E. Dougher, who reported to E. P. Cunningham).

In March 1948, operating as the Oak Ridge National Laboratory and managed by Carbide and Carbon Chemicals Corporation, Plant Services' tasks were performed by the Mechanical Department under the leadership of F. W. Clay. By January 1951, E. W. Parrish was superintendent of the Mechanical Department. New names on the organization chart included John **Agee**, Fred Anderson, A. Brewer, C. E. Clayton, H. Davidson, E. A. Davis, Bill Felknor, T. A. Jacques, and J. R. **McKnight**. In August 1959, the department was reorganized to include a Fabrication and Field Services Department managed by E. W. Parrish with Harry Nichol in charge of field services, Julian Gissel in charge of plant services, and Ed Davis in charge of electrical services.

The following changes occurred from July 1963 to the present: July 1963—the P&E Division was formed with a Services Department managed by L. F. Lieber; January 1964—the name of the department was changed to Maintenance Department; July 1964—the Plant Services Department was formed and was managed by E. A. Davis, who reported to Lieber, and a facilities maintenance department, headed by H. F. Keesee who reported to Davis; January 1966—the various Maintenance and Field Service departments were reporting directly to Lieber, who served as head of the Maintenance Department; January 1967—the department name had been changed to the Maintenance and Plant Services Department; February 1968—J. E. Longendorfer was supervisor of Maintenance and Plant Services; 1973—K. E. Jamison was head of the Maintenance Services Department and served in that capacity until September 1979. H. H. Nichol served as department head from September 1979 until his death in February 1980; D. N. Smith from March 1980 until February 1981; C. L. Fox from February 1981 until July 1988; and J. L. Hammontree from July 1988 until the present.

The Plant Services Department currently comprises three departments:

- **Building and Utility Services** provides roof maintenance, building maintenance and alterations, interior and exterior painting, insulation work and asbestos removal, maintenance of the Steam Plant and its outside utility piping, maintenance of inside utility systems, maintenance of waste systems, and sign painting.
- **Transportation and Support Services** provides maintenance on all autos, trucks, and heavy equipment; fabrication and installation of ironwork; all rigging and transportation services; road and grounds maintenance; landscape maintenance and pest control; waste and salvage material pickup; and labor pool and moving services.
- **Electrical, Air-Conditioning, furniture and equipment, and Heating Services** provides for maintenance on all air conditioning equipment, all filtered exhaust systems not associated with reactors or hot cells, electrical distribution systems, building electrical systems, elevators and emergency generators, fire alarm systems, and specialized coil winding and transformer repairs.



Current Plant Services organizational chart.

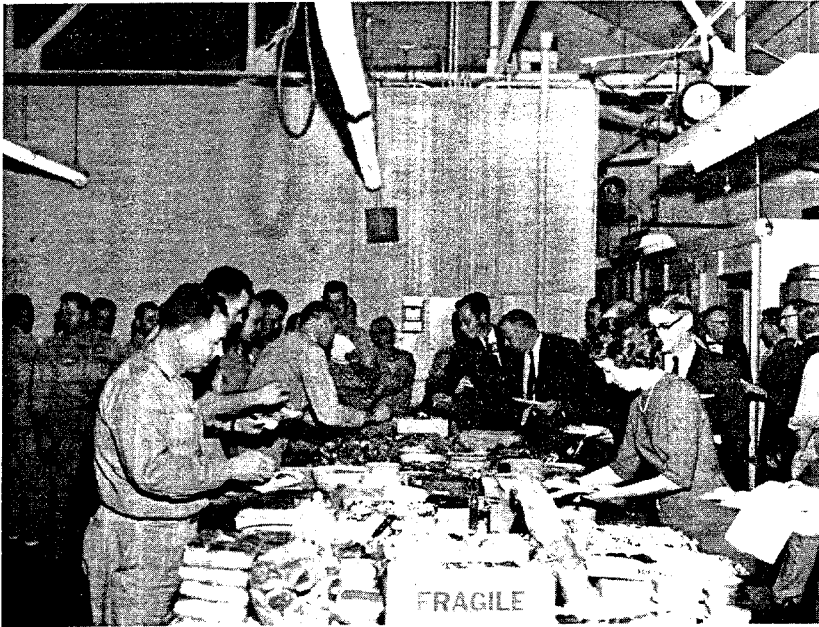


▲ Personnel of the Electrical Department in 1953. First row, left to right: Ray Stokes, Sam Hurt, E. C. Carter, Doc Sexton, J. R. McKnight, C. B. Connelly, Jim Cain, Ed Davis, T. A. Jacques, and Jack Packard. Second row: Roy Harhnan, Bill Fair, Clarence Bean, Bill Sewell, W. C. Williams, Ray Littlefield, Ed Vittatoo, Sid Ramsey, Ted Newman, and George Pearson. Third row: A. T. Nelson, Doc Craig, Ben Gibson, W. F. McCulley, Vaughn Huskey, Cecil Henline, and Henry Tuck. Fourth row, standing: Haskell Swearengin, John Leslie, Clyde Thompson, R. Hutchesin, Ode Weaver, Bob McKenzie, Gene Herrill, and M. L. Snow. Fifth row: George Leever, Charlie Miller, Jim Wallace, Lee Gaskins, Ralph Wyrick Roscoe Woodby, Andy Horton, A. C. Powell, Pop Colyer, Laura Stringfield, and Bob Charles. Sixth row: W. J. McMahan and C. B. Stokes.



▲ Electrical Department personnel at 1955 Christmas dinner. Kneeling left to right: Ray Stokes, E. C. Carter, Doc Craig, J. R. McKnight, Alton Brewer, and R. Hutchesin, Standing, left to right: George Pearson, Roy Hartman, Haskell Swearingin, Truman Jacques, Clarence Bean, Bill Sallee, Ed Davis, Jack Packard, and M. L. Snow.

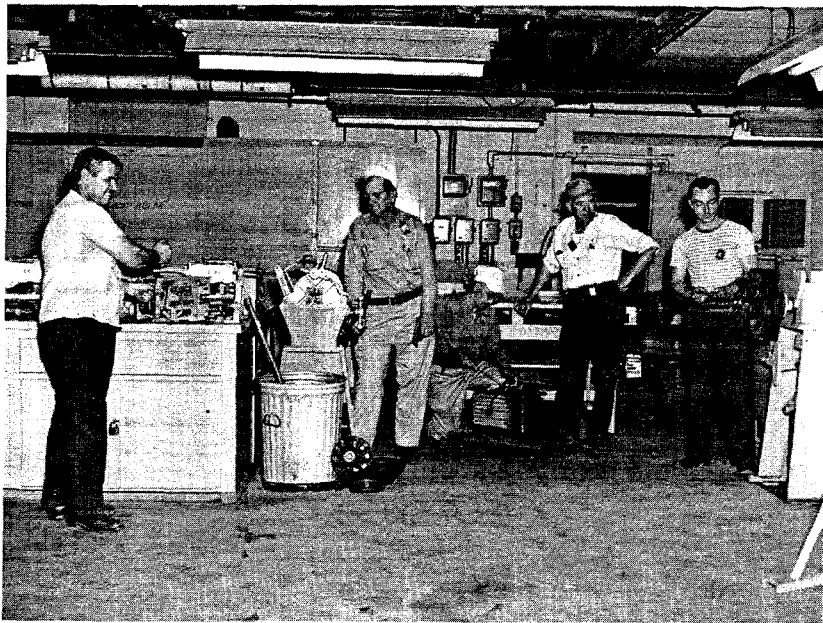
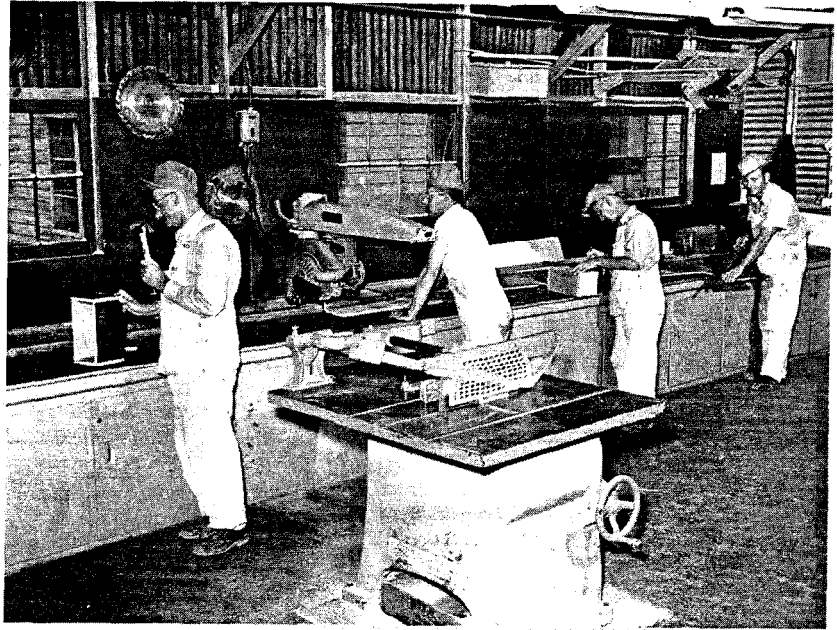
1962 Christmas dinner. At table left to right: Lloyd Bryson, A. J. Benson, Ernie Wilson, Ralph Porter, Ben Gibson, Slim Longworlh, Jim Cain, Bill Buker, Mansell Ramsey, Gibson Morris, and Doris Shrader. Background left side: Fred Presswood, Hurdle Drinnen, and Jess Raper. Background right side: Jim Bentley, J. R. McKnight, Ed Vittatoe, and Bill Lowry.



Supervisors in the Electrical and Air-Conditioning Department in December 1962.

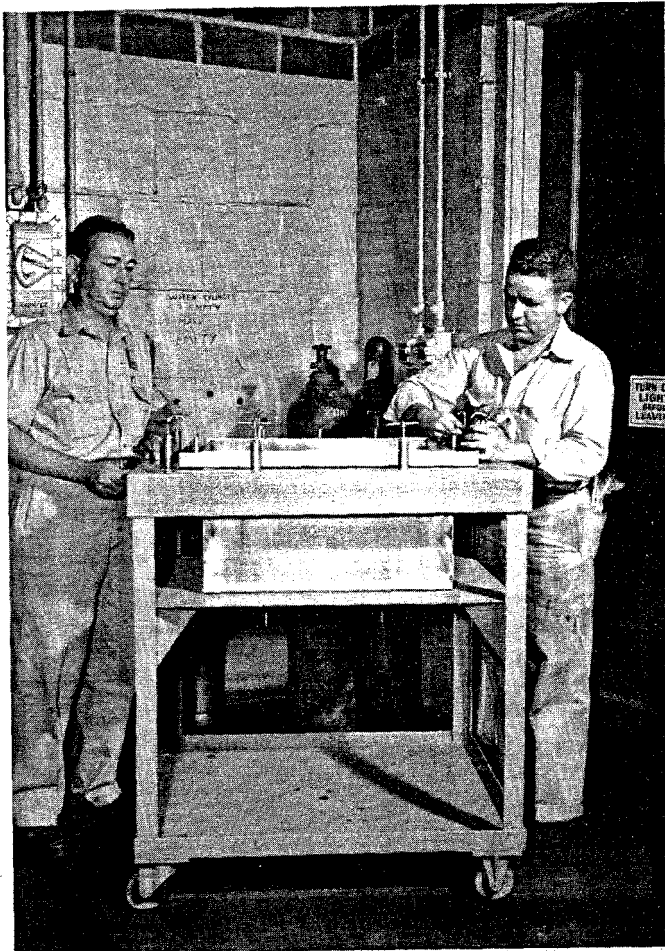
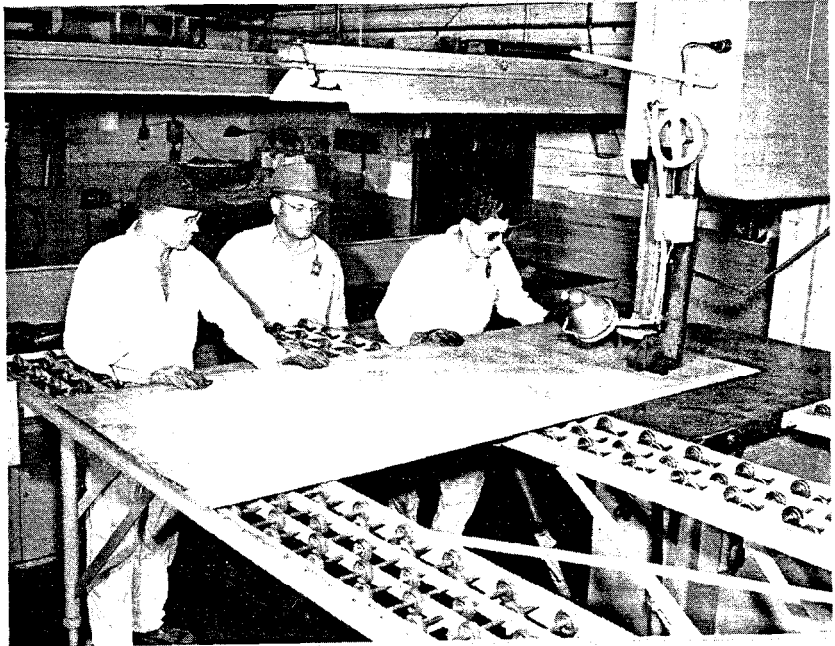
Standing left to right: C. R. Grubb, J. T. Craig, R. M. Hartman, D. D. Montgomery, H. E. Felts, E. C. Carter, A. Brewer, J. R. McKnight, and E. A. Davis. Seated: J. E. Bentley, Ray Stokes, H. H. Tuck, T. M. McGill, C. E. Hall, and T. A. Jacques.

Carpenters in Building
3573. F. S. Kent, J. R. Pesterfield,
J. M. Browning, and
G. B. Gamble (1951).



Electrical repair group.
S. Hurt, R. C. Greene,
C. C. Ainsworth, Jack Packard,
and John Leslie (1949).

Cutting metal plate with band saw in Millwright Shop.
M. G. Lamb, H. W. Mayfield,
and E. M. Harmon (1949). ▶



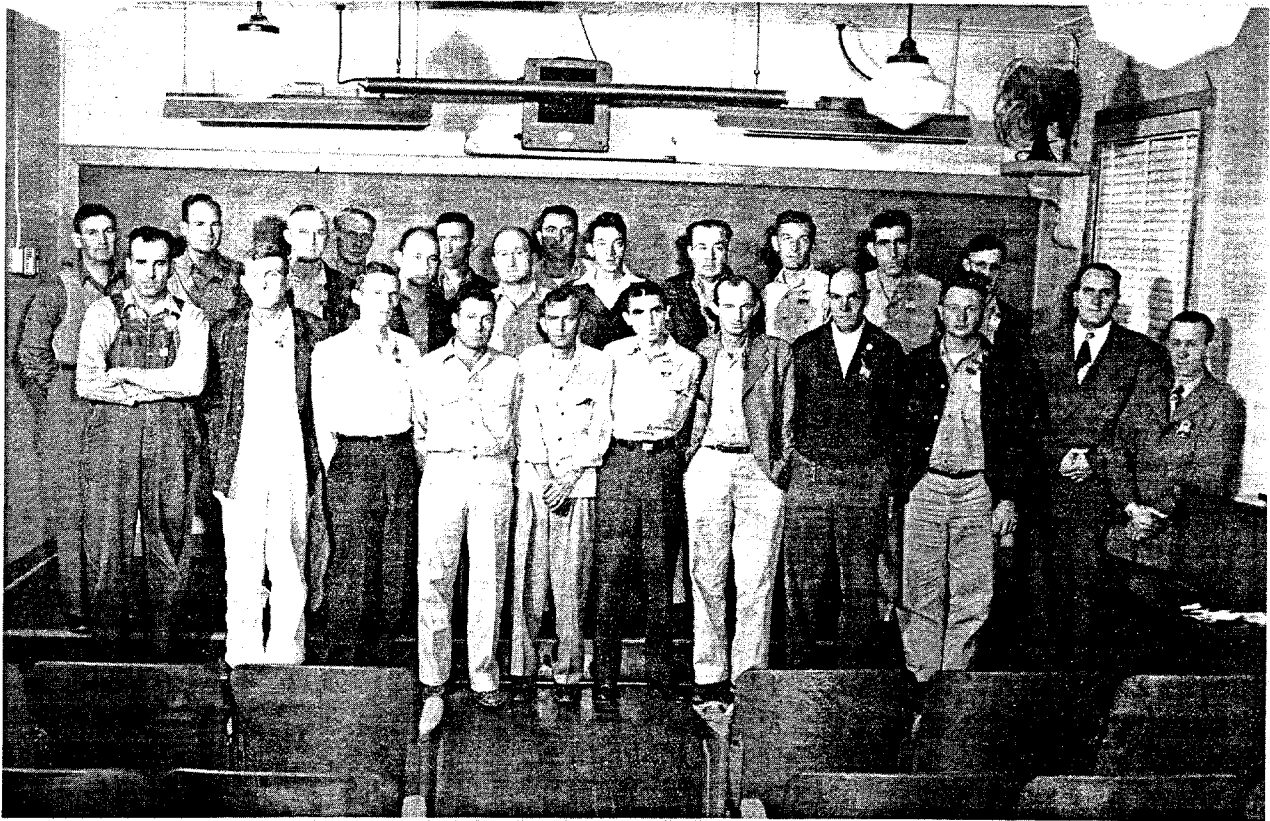
◀ Engineering and Maintenance Division mechanics. R. L. Raulston and C. D. Wicker perform work on a part of a plant growing chamber that comprises elements of the isotopes 'farm.' The equipment used in the "farm" was designed by field engineer P. W. Hembree and was constructed in ORNL shops (1949).



◀ Metal cutting with oxy-acetylene torch in Millwright Shop. Sam Prince, Henry Klemski, Carl Rutherford (1949).

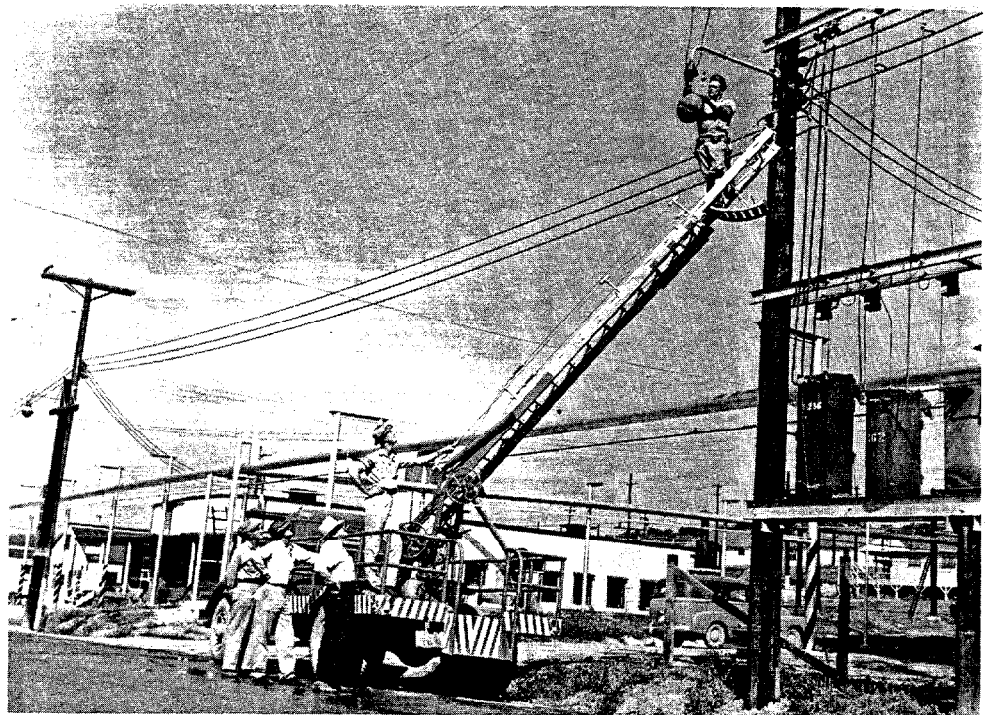
Old Blue (new tractor-trailer). Left to right, John Lackey, general foreman of Transportation and Garage; Marion Atchley, driver; Burl Jackson, supervisor of Transportation on stepladder (1951). ▼





▲ Transportation Department safety awards for one to seven years of driving without a preventable accident. Left to right, W. M. Gardner, C.R. McGhee, C. E. Clark N. H. Cooper, J.M. McDaniel, R. E. Kitts, R. A. Hitson, M. S. Jenkins, L. M. Foust, C. E. Larson, and Burl Jackson (Transportation foreman). Back row: C. R. Johnson, M. A. Banks, Robert Gentry, W. E. Tolson, H. R. Cannon, W. Herron, W. A. Fagg, H. A. Crawford, C. L. Mayes, G. P. Sutton, H. A. Dalton, R. E. Ervin, and V. C. Rogers. Not present: C. R. Cox, T. O. Hagan, R. E. Lee, G. W. Huskey, W.H. Johnson, M. P. Ramsey, M. E. Atchley, W. A. Cinnamon, R. A. Ticnor, W. N. Holt, H. C. Davis, R. H. Ferguson, W. A. Bradshaw, and G. C. Violet (1951).

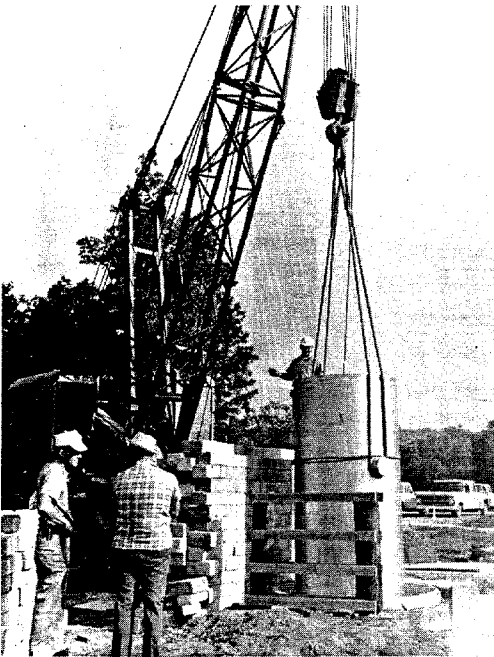
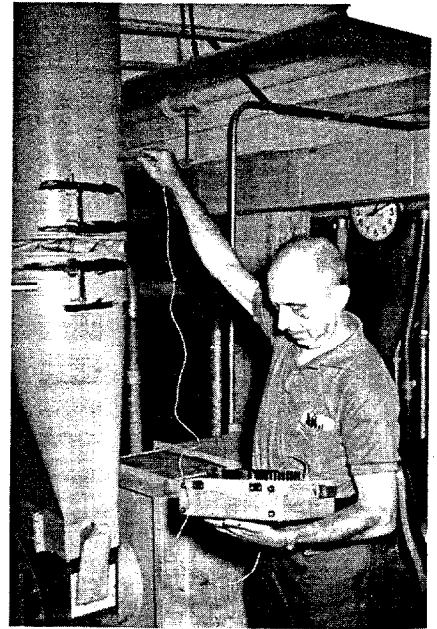
▶ Replacing street light. J. H. Sanderson, M. D. Storey, J. A. Cain, J. R. McKnight, and Jack Packard (E&M Division, 1951).





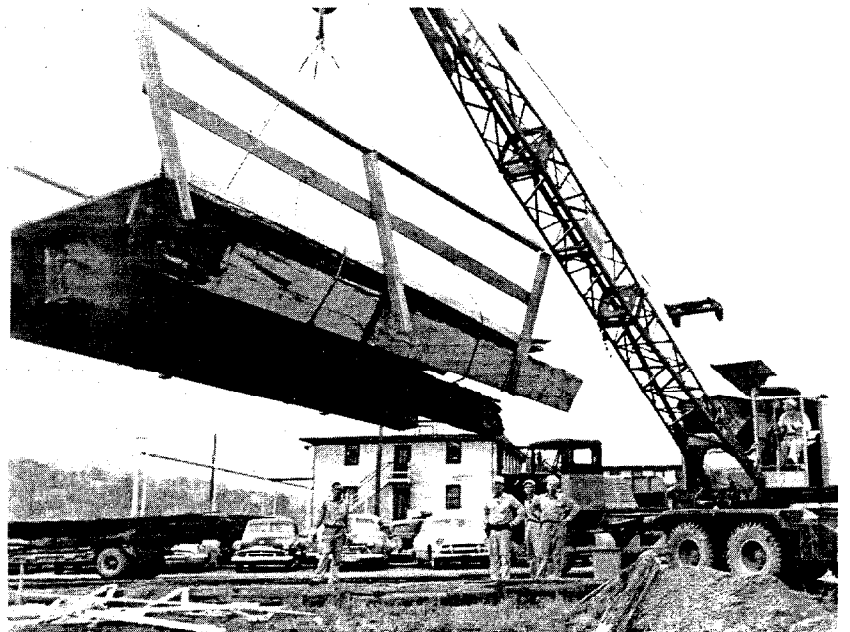
▲ Badge racks being removed at East Portal (Building 5000). James Ellis, A. V. Sparks, and Raymond McCroskey. G. C. Violet watches (1965).

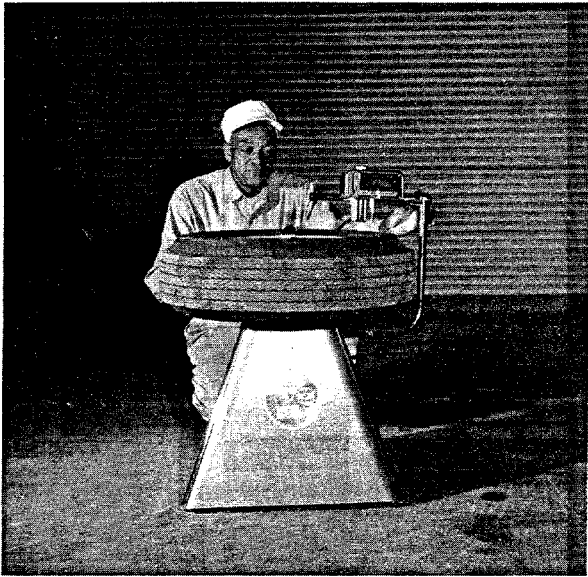
Plant and Equipment senior engineering technologist, A. R. "Yank" Suneson measures air velocity in a high-efficiency particulate filtered exhaust system that prevents radioactive materials from escaping into the atmosphere (1967). ▼



▲ Rigger Bob Foust assisting in unloading shielding cask into storage silo in Solid Waste Storage Area as Houston Gelfner and Doc Johnson observe (1969).

Riggers removing First Street Bridge east of Building 1000. Note the late-model cars (1954). ▼





◀ Repairing a tire- James Miller in the garage (1969).

Helping load contaminated equipment at shale fracturing site. 'Red' Mashburn (1972). ▶



Safety plaque. C. R. Grubb receives safety plaque from Harry Seagren for Electrical and Air Conditioning Department (1973). ▶



Fabrication Department

The mission of the Fabrication Department is to provide machining and fabrication support of research hardware for current and future Laboratory initiatives. The Fabrication Department also provides multicraft fabrication support for facilities maintenance; welding technology for developing and maintaining welding procedures as well as qualifying P&E Division, prime contractor, and subcontractor welders; calibration services for ORNL-wide precision balances, scales, and dimensional-measurement tools; independent inspection of critical dimensions on fabricated components manufactured by ORNL or outside vendors; and scientific glassblowing services for all of ORNL and the Y-12 Plant. All of these services are performed in an environment in which the safety of our people is always the number one priority.

The history of the Fabrication Department dates back to 1943, at which time the plant was operated by DuPont. Records from the period indicate that from 1943 to 1946 all craft disciplines were under the supervision of A. J. Schwertfeger. In June of 1943, construction was completed on a building that was to be used as a machine shop (known as the 101 shop). The 4-inch square graphite bars that were machined in this shop made up the 24-foot cube that served as moderator and reflector for the historic Graphite Reactor. Uranium fuel slugs were loaded in horizontal holes through the graphite cube.

From August 1946 to July 1991, the Fabrication Department's mission has been primarily the same, although it has operated under three different names: Research Shops, Central Mechanical Shops, and the Fabrication Department. Beginning in August 1946, Research Shops (now the Fabrication Department) was supervised by W. E. Weiner, who was succeeded by W. J. Stinson in May 1947. During July 1947, Paul Kofmehl became department superintendent of Research Shops, which at that time had 127 staff members.

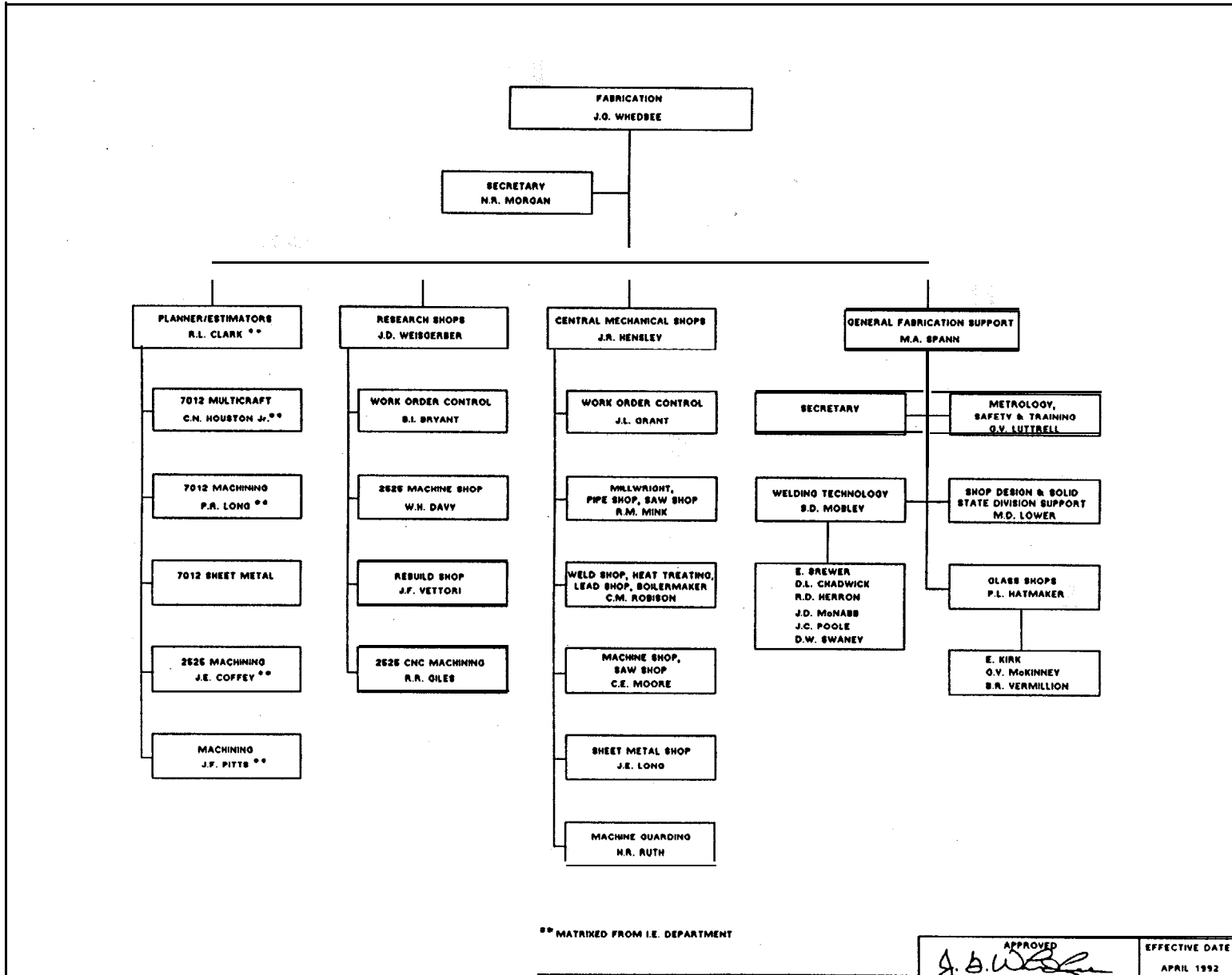
In March 1948, the Research Engineering Department was established with Kofmehl as department superintendent. This department consisted of three smaller sections: Research Instruments, Research Design, and Research Shops. The research shops were supervised by assistant department superintendent J. E. Longendorfer. Kofmehl held the position of department superintendent from July 1947 to July 1951. During July of 1951, Kofmehl was placed on special assignment, and Longendorfer was promoted to department superintendent of the Research Shops.

In July 1954, the Research Shops were given a new title, Central Mechanical Shops. Longendorfer was department superintendent. In January 1957, Central Mechanical Shops was divided into two sections: Shop Facilities (supervised by assistant superintendent R. M. Farnham) and Development (with R. J. Fox and D. L. Holcomb). During January 1959, the department title changed from Central Mechanical Shops to Fabrication Department. At this time W. A. Blevins was promoted to department head of Shop Facilities reporting to Farnham, who remained assistant department superintendent. Fox and Holcomb also remained as engineers with the Development Section.

In 1964, the Union Carbide corporate office bought the Kearney Work Measurement System, which later was called the standard estimating system (SES). Kenneth Dripps of general craft and Joe Varagona of machining were trained with planner estimators in the Fabrication Department. By 1972, SES work measurement was used in all departments. Machine loads were determined by sampling, and a clerical system, goals, and graphics were developed. Cutbacks in the 1970s curtailed the work

measurement program to only the Fabrication Department, whereas a modified activity sampling method was developed to measure effectiveness in Maintenance and Research Services.

In October 1968, Longendorfer retired and was succeeded by Farnham as department superintendent of the Fabrication Department. In 1973, Research Services was added to the Fabrication Department and was supervised by Farnham until July 1979. Farnham served as department superintendent until he retired on December 31, 1986. S. G. Cortelyou then became department superintendent and served until October 1988, when he accepted a position at Central Employment. In October 1988, J. G. Whedbee was named superintendent of the Fabrication Department. In July 1991, the department consisted of three smaller departments: Central Mechanical Shops, with J. R. Hensley as general supervisor; Research Shops, with J. D. Weisgerber as general supervisor; and Technical Services, which includes welding technologists, dimensional inspectors, and glass blowers, with Mark Spann as department head. Hensley, Weisgerber, and Spann currently report to J. G. Whedbee, department superintendent.



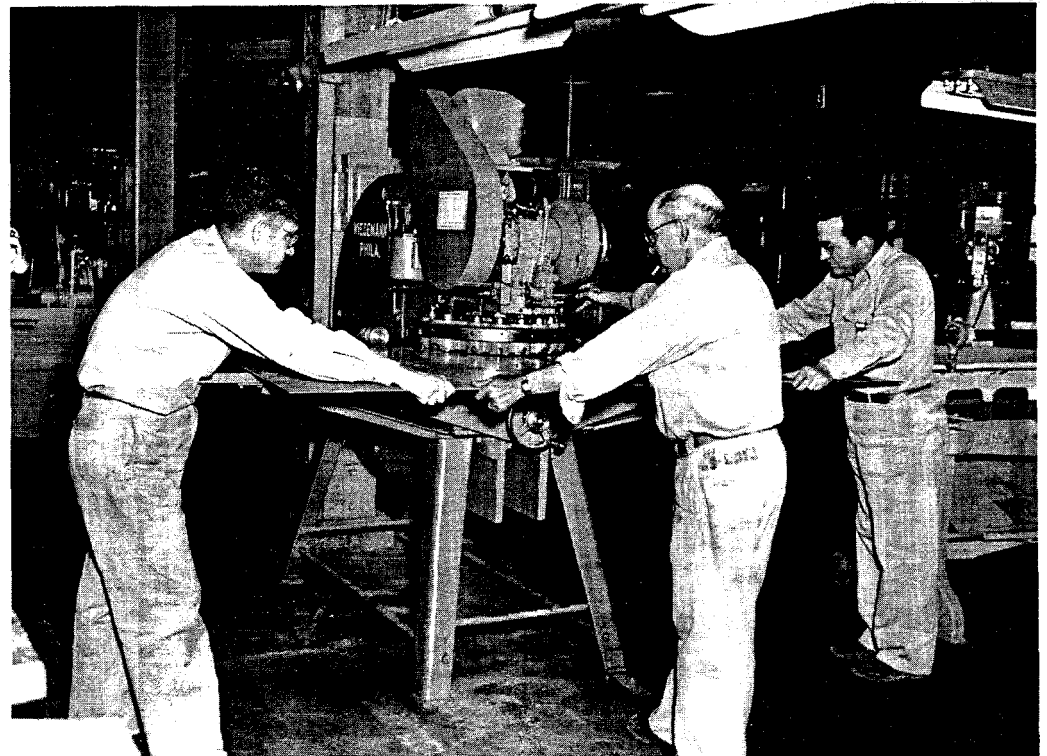
Current Fabrication organizational chart.



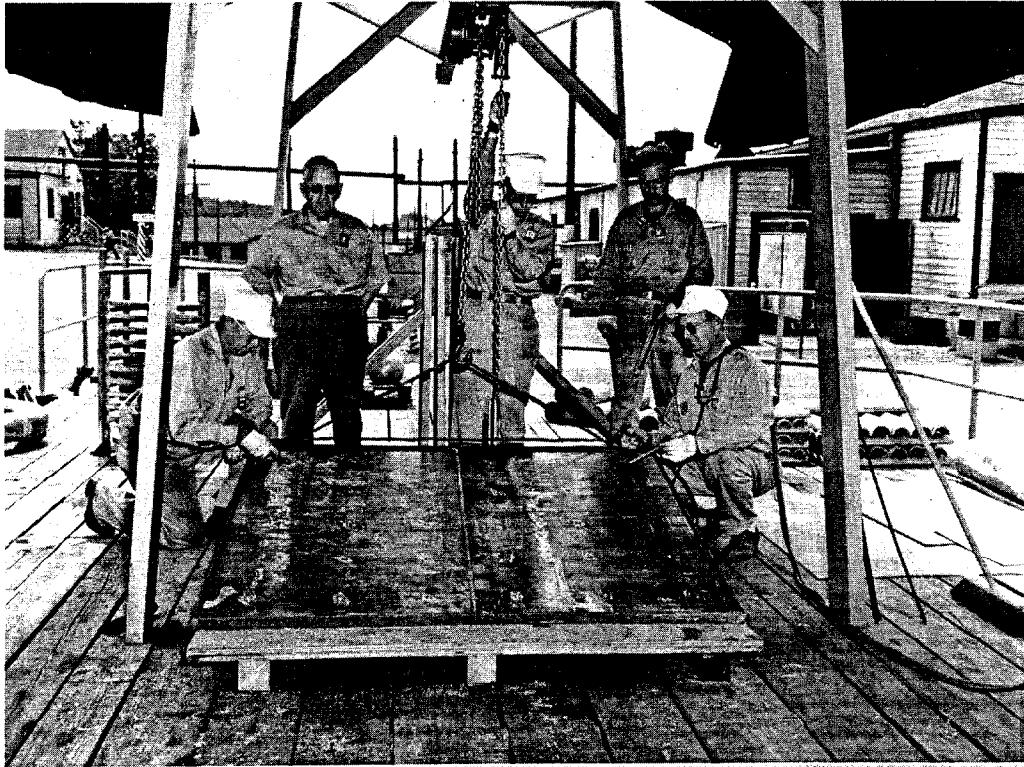
◀ Safety has always been the number one concern of the Fabrication Department. This is a group of machinists that participated in the United Mine Workers safety contest held in Knoxville, Tennessee, in 1948. No one

seemed to remember in what position they finished; however, just to participate in the contest made them winners, Kneeling from left to right: C. E. Coile, J. W. Brashier, J. A. Blair, J. A. Burkhalter, and H. C. Easter; patient is J. W. Prewitt (1948).

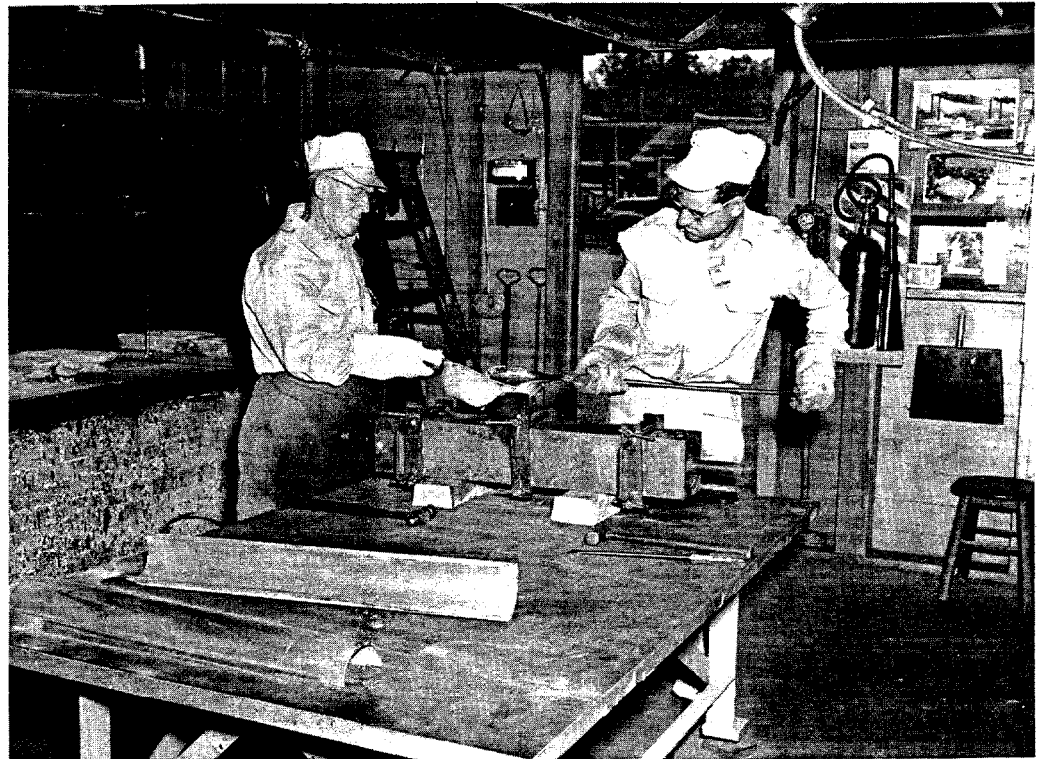
Sheet metal craftsmen. D. F. Hurt, H. C. Mink and B. L. Connell operate a new rotary punch-press used to fabricate parts for instruments, chassis, and cabinets (1949).

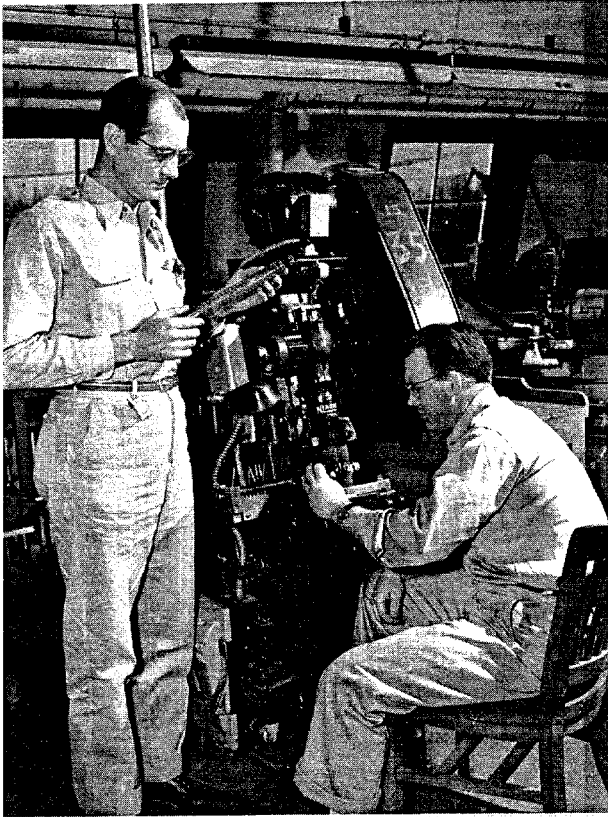


Leadburners. J. W. South, J. F. Carberry (supervisor), T. E. Rush, O. F. Manuel, and P. E. Homsby are preparing a 5 x 5 -1/4 feet and 1 inch thick sheet of lead for use as shielding at the Laboratory (1949). ▼



Leadburners. G. C. Karr and J. R. Key in Lead Shop casting shielding for piping used in proximity to radioactive materials. In the late 1940s, the leadburners used an average of one ton of lead per day for shielding and implements (1949). ▶



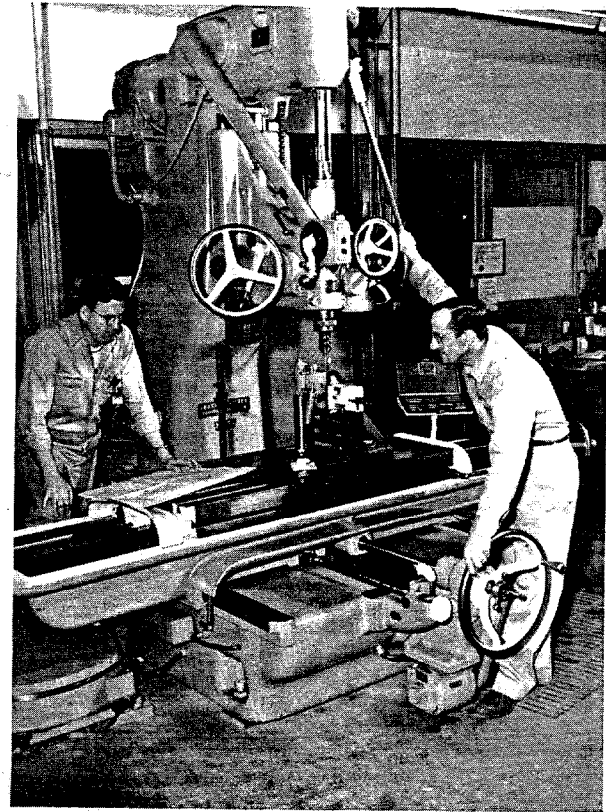


◀ Instrument Machine Shop/Research Shops Department. Ollie Smelcher and Claude Coile (1950).

E. W. Davis operates lathe as shop supervisor, C. W. Wright, Jr, watches (1950). ▼



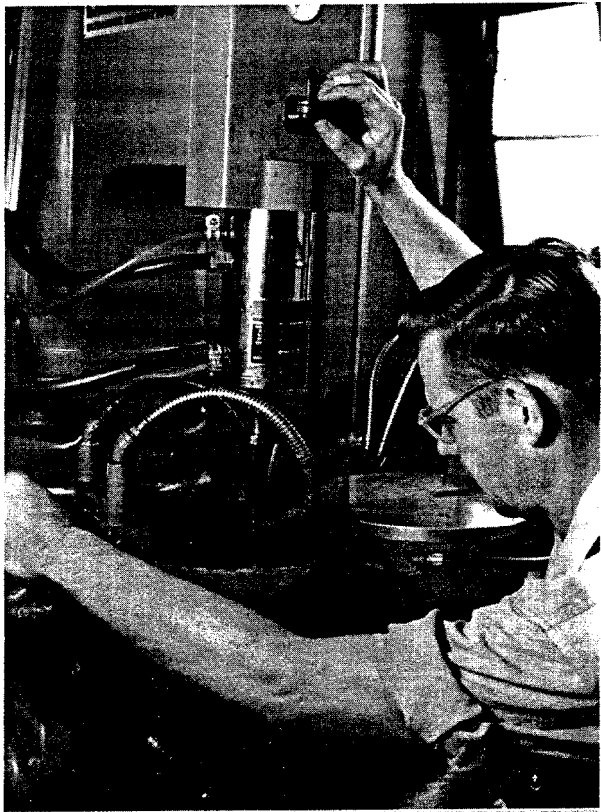
Leadburners fabricating sulphuric acid vat. O. F. Manuel, H. Wright, T. E. Rush, and J. W. South (1951). ▼



▲ Using a Pratt-Whitney jig borer in B-B shop (Building 3024) to alter a lathe tailstock. Al B. Kenney and Charles E. Cox (1951).

Leadburners fabricating sulphuric acid vat. C. W. Wright, P. E. Hornsby, and W. C. Garrison (1951). ▼



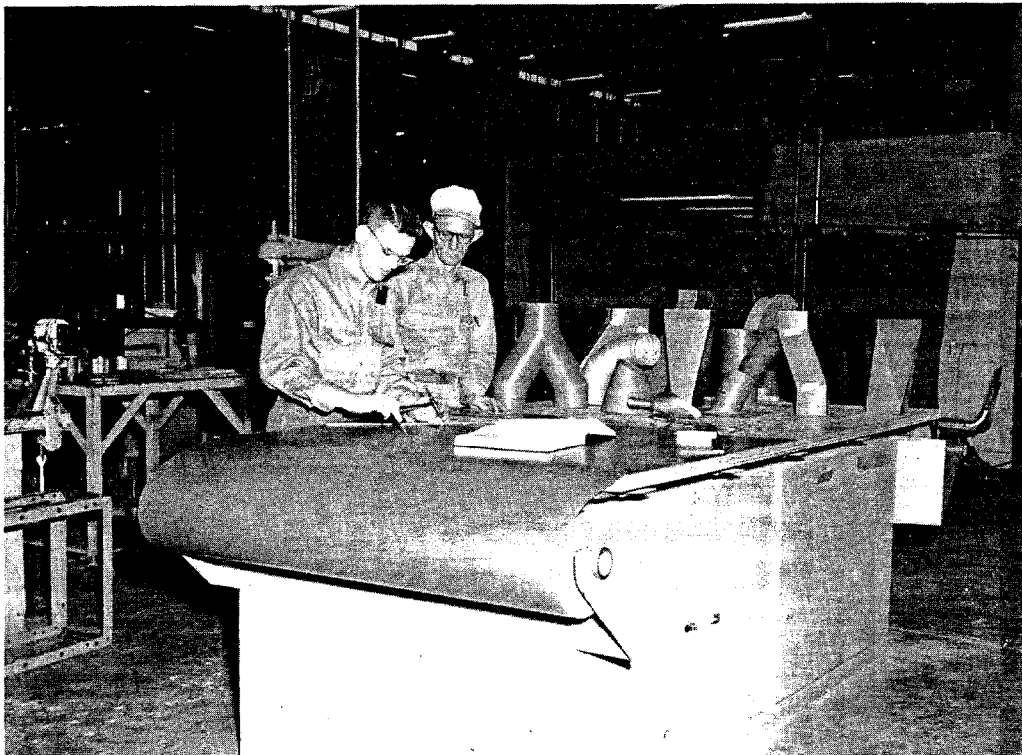


▲ Operating ultrasonic cutting machine.
Machinist Nelson Wilkins (1955).

H. E. Seagren (E&M superintendent) presenting safety plaque to R. L. Neubert, machine shop supervisor with Gordon Guthrie, Pat Stallo, Robert Hopper, and Elbert Deadrick present (1962). ▼

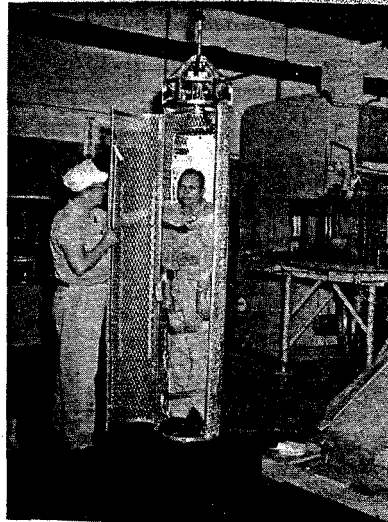


Sheetmetal shop. L. E. Brown doing layout as E. B. White watches (1957). ▼





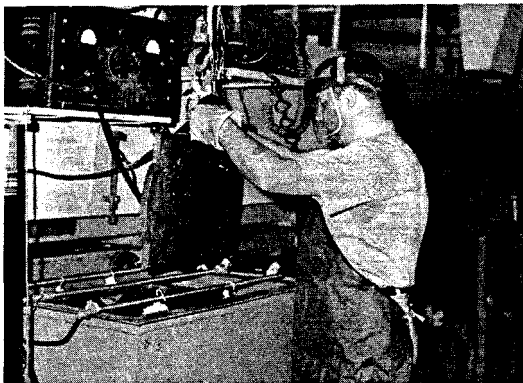
▲ Glassblower. R. F. Myrick, Jr. (1964).



▲ Demonstration of an escape cage to be used in emergency situations to remove personnel from Health Physics Division Project Salt Vault demonstration at Carey Salt Company's mine in Lyons, Kansas. M. H. Barger and T. C. Cash (1965).



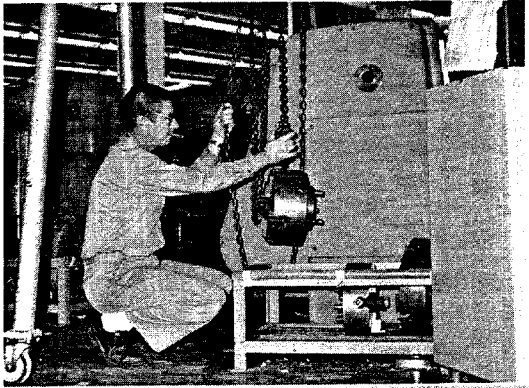
▲ An instrument maker in the Fabrication Department. D. P. (Blackie) Madewell, shown inspecting miniature screws (1966).



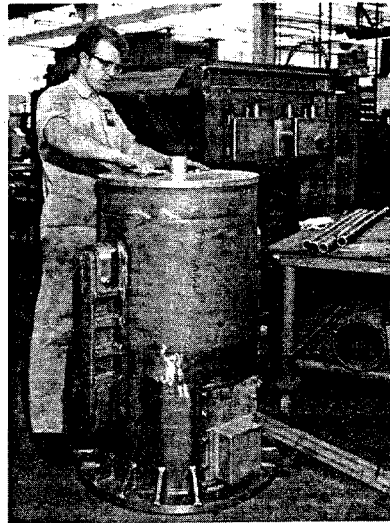
▲ Plater. R. W. Ormsby applying silver plating to Nevada HENRE, or High Energy Neutron Reactions Experiment, target in Plating Shop (1967).

Glassblower trainees. Jane Copeland (left) and Fern Stoddard studying under the Manpower Training and Technologies program sponsored by Oak Ridge Associated Universities, the University of Tennessee, Union Carbide Corporation, and the U. S. Atomic Energy Commission (1967). ▼

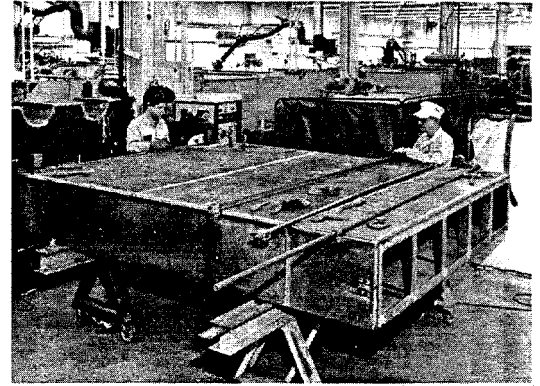




▲ Moving lathe chuck in Central Mechanical Shop (Building 7012). Bill Foutz (1968).

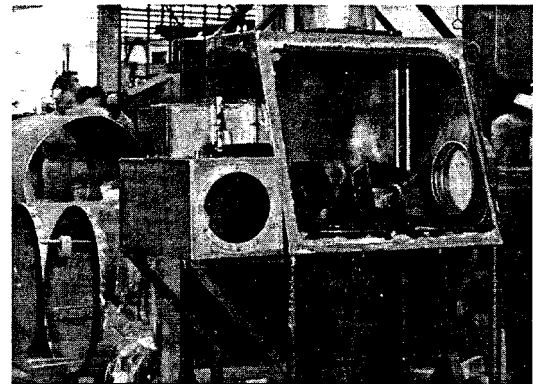
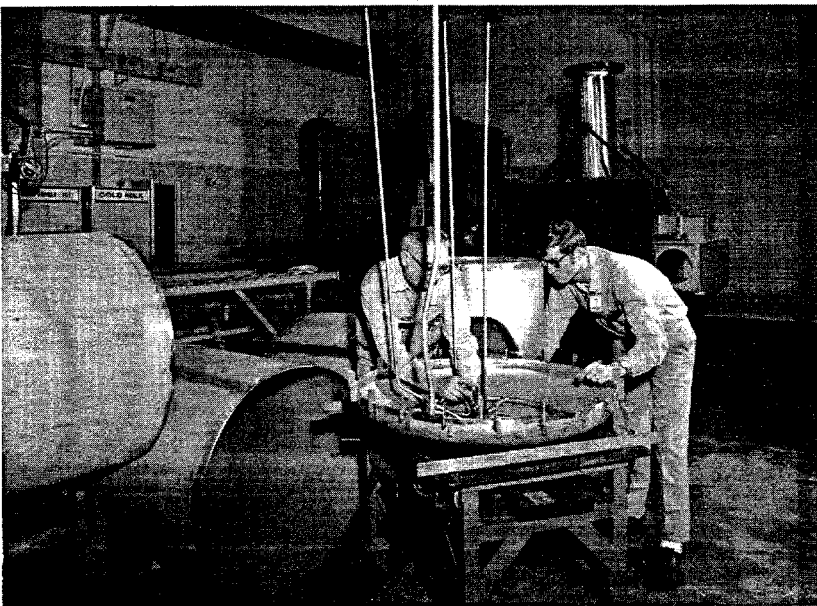


▲ Assembling carrier in Central Mechanical Shop (Building 7012). Bill Moody (1970).

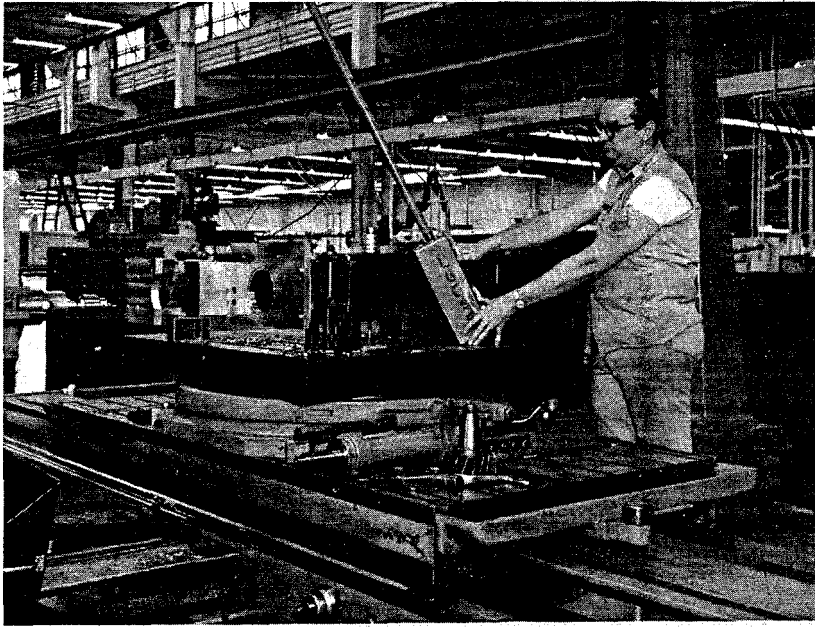


▲ Shielding tank being fabricated in Central Mechanical Shop (Building 7012), by Paul Rush, welder, and M. F. Curtis, boilermaker (1970).

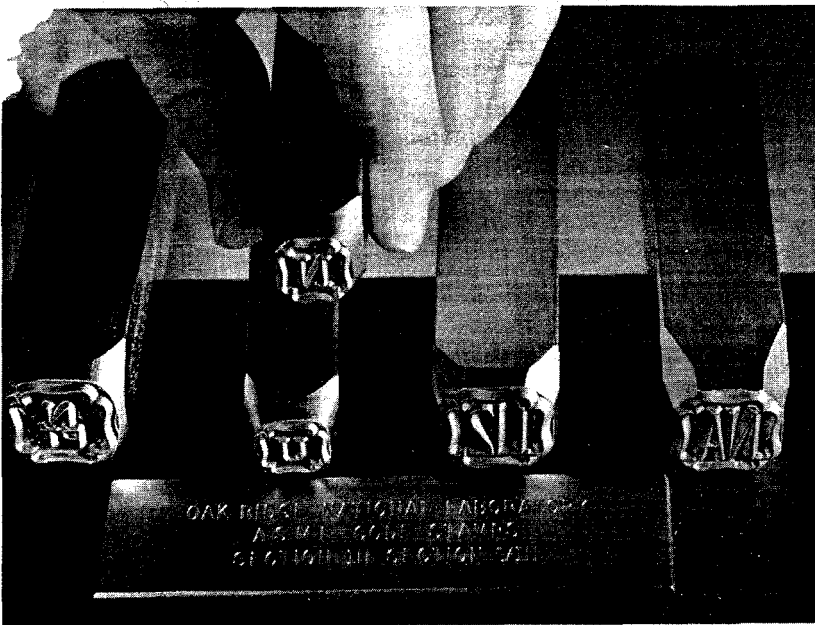
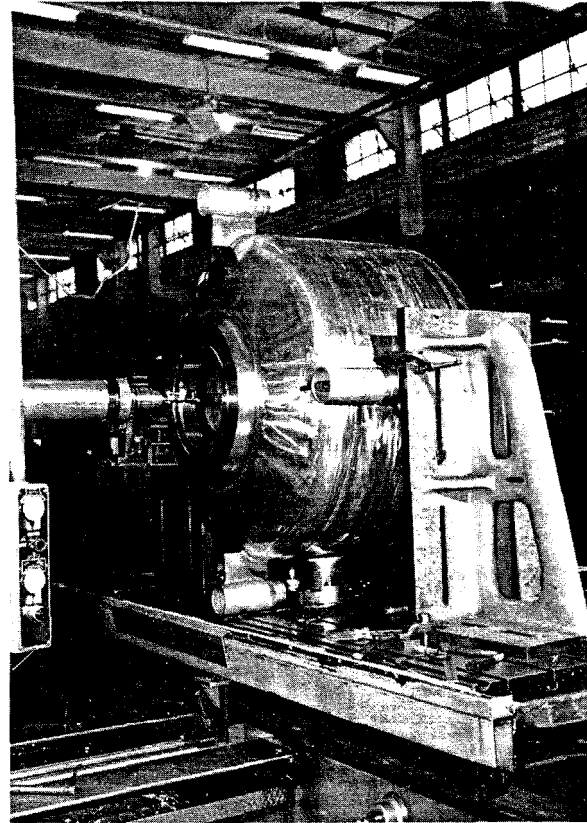
Boilermakers. Harold Naylor and Jim Mullins fabricate process vessels (1970). ▼



▲ Glove box being fabricated in Central Mechanical Shop (Building 7012) (1970).



◀ Operating Lucas boring mill in Central Mechanical Shop (Building 7012), George Luttrell (1970).

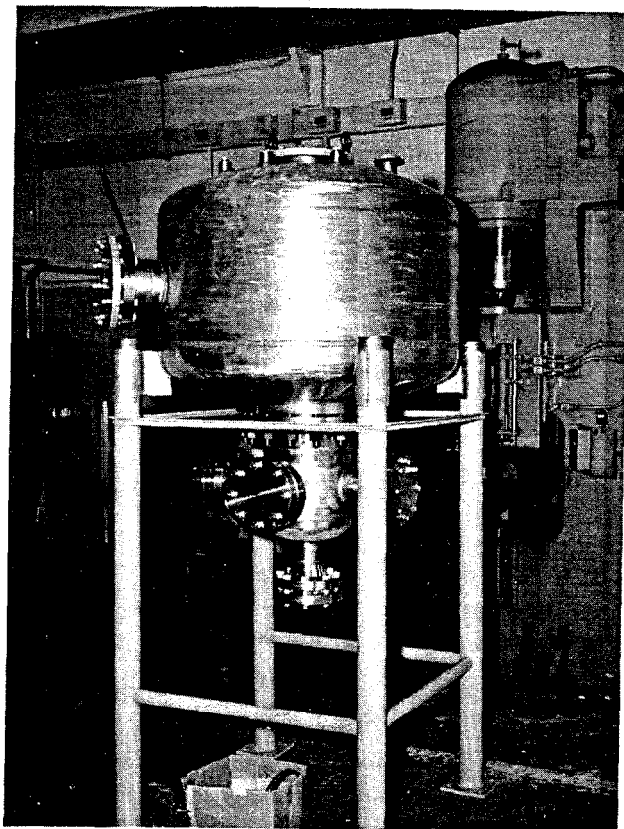


◀ Code stamps-ORNL is the first DOE (AEC) national laboratory to receive certification by the American Society of Mechanical Engineers (ASME) to build components for experimental nuclear power plants according to ASME code. The five code stamps shown are

as follows:

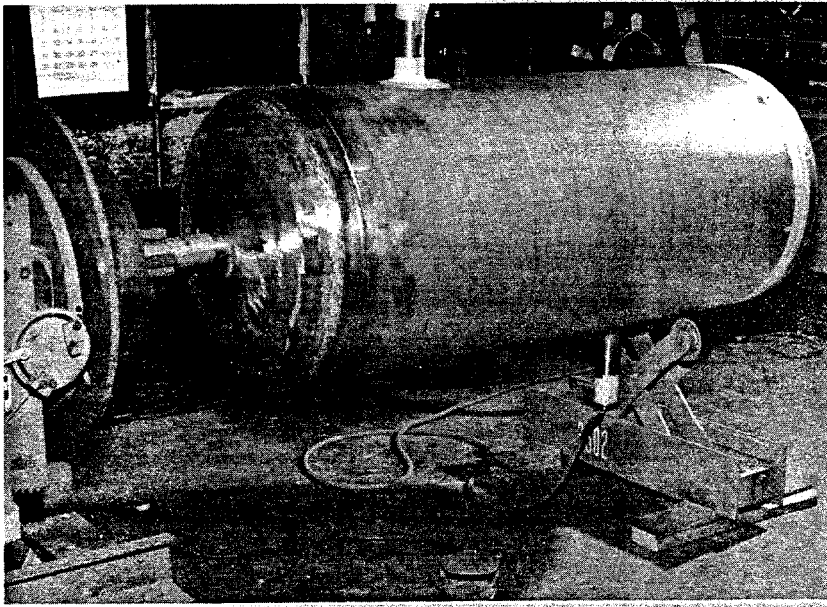
- "N"-nuclear pressure vessels and heat exchangers
- "NPT"-nuclear piping subassemblies
- "NA"-installation of nuclear equipment
- "U" and "U2"-conventional heat exchangers and pressure vessels (1974).

Vessel being fabricated in Central Mechanical Shop, Building 7012 (1976). ▶



Pressure vessel being fabricated in Central Mechanical Shop, Building 7012. Gary Petrey, boilermaker, is shown beside the pressure vessel (1977). ▶

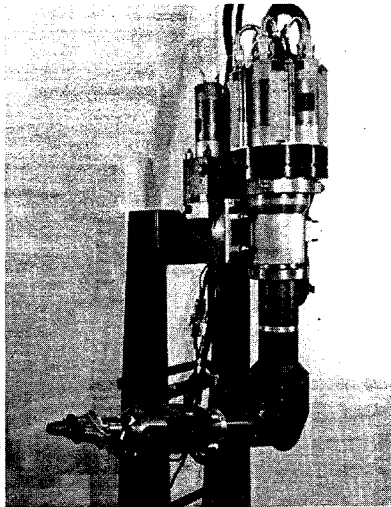




▲ The Fabrication Department of the P&E Division, one of only two DOE contractors certified to fabricate unfired pressure vessels, was recertified in 1990 for another 3 years by ASME.

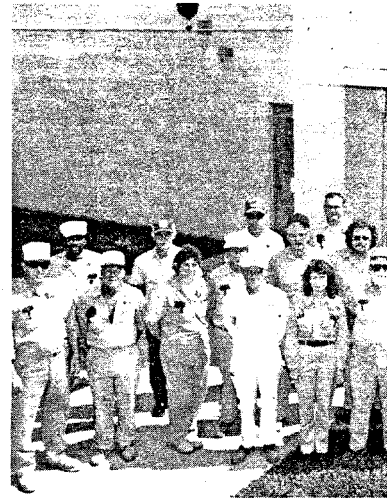
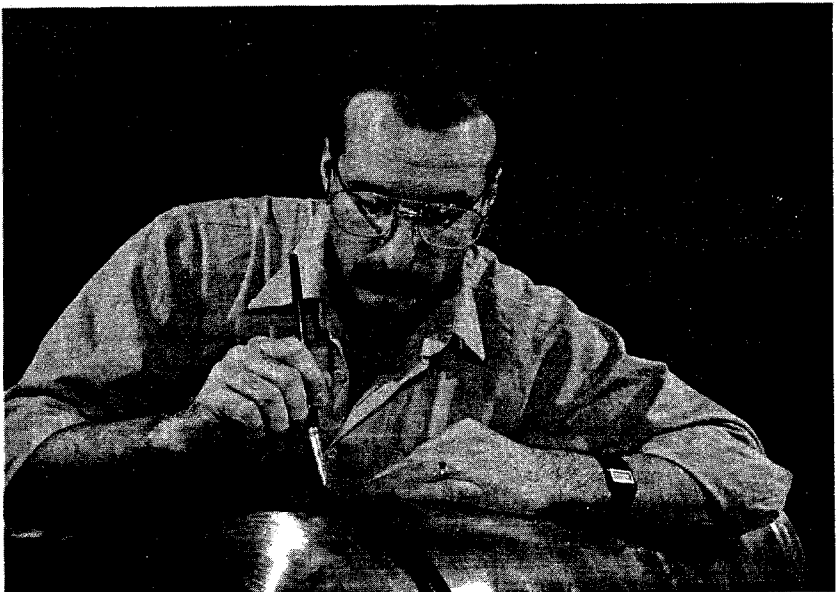
The recertification process includes a detailed audit of the controlled manufacturing program by representatives of the ASME national board. A demonstration vessel is actually fabricated for the board's inspection (above photo).

The required work was performed in September 1991 to permit certification of the Fabrication Department as a holder of the 'R' stamp. This will allow the Fabrication Department to make repairs and alterations to unfired pressure vessels.



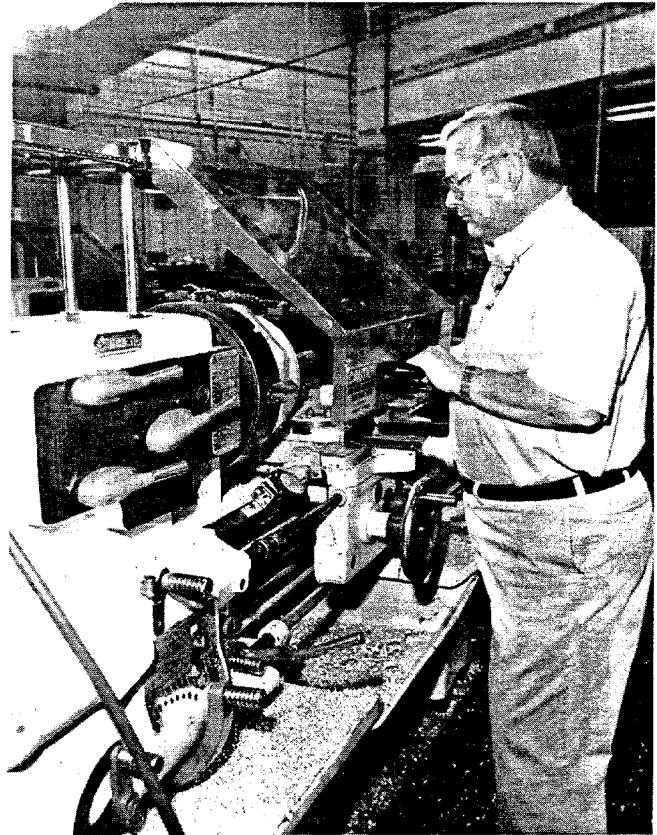
◀ The Advanced Servo Manipulator for the Chemical Technology Division was machined in Building 2525 utilizing the Computer Numerical Controlled lathes and milling machines (1984).

Welding inspection. Darrell Chadwick performs dye penetrant test of welds on a pressure vessel (1990). ▼

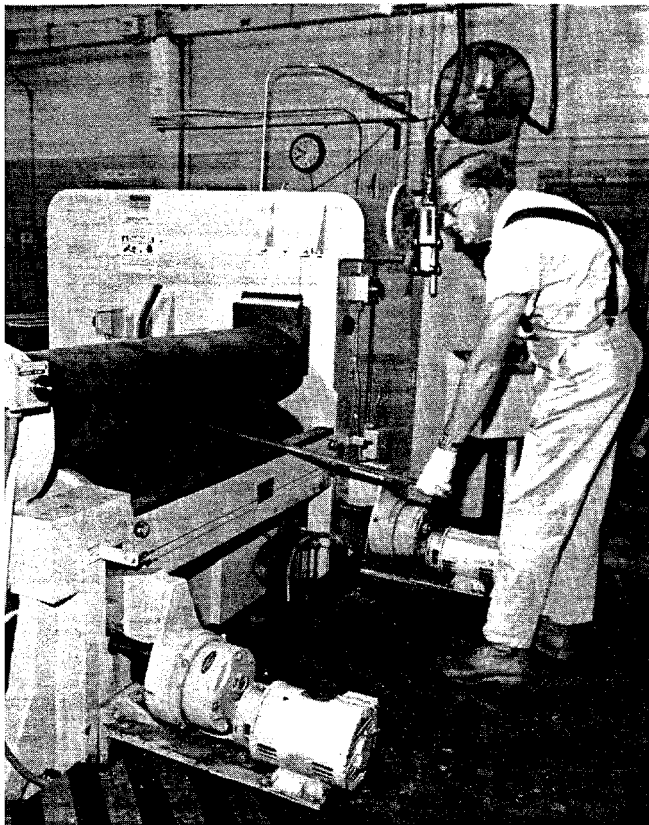


Plant and Equipment crew responsible for new "SPARKLE" effort at HFIR during restart preparations. Left to right:

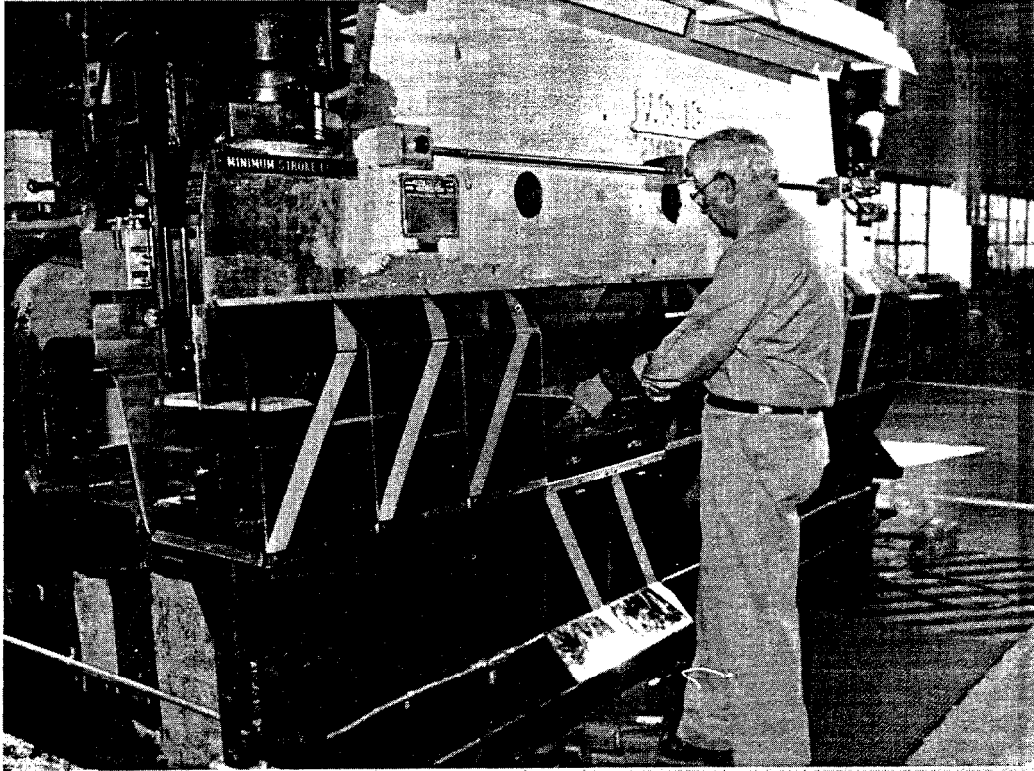
Gaston Powers, Gene Hackler, Bill Crowe, Bob Ledford, Phyllis Shelton, Charlie Eubanks, Jim Rhodes, Ron Wright (back), Brenda Sampsell, Floyd Hatmaker, Elmer Haney (back), Butch Catron, Jerry Greene, Don Rhodes, Jim Buchanan, John Bryant, Maurice Williams (back), Ernie Henley, Gene Moody, Don Powers, T. J. Bradley, and David White (1989).



▲ Using an OSHA-guarded lathe. James Duncan (1990).



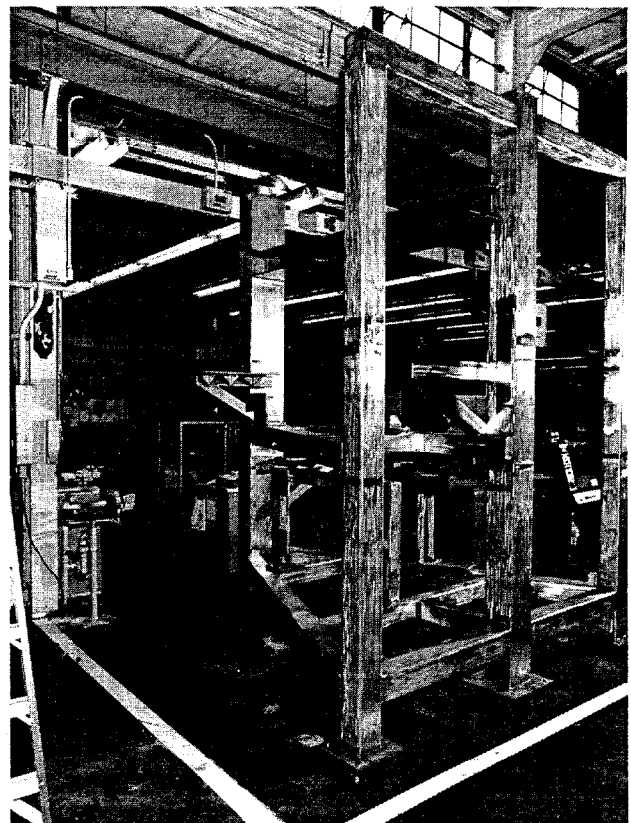
◀ A millwright in the Central Mechanical Shops. Bob Webb, is shown rolling a 1&inch diameter ring from a piece of rectangular steel bar. This roll received a very good compliment from Mr. Murphy of the "Tiger Team"; his comment was, "This is the best guarded roll I have ever seen" (1990).



◀ Following the OSHA machine guarding campaign, W. H. Gibson operates a hydraulic press brake in the sheet metal

fabrication section of Central Mechanical Shop (Building 7012) (1990).

This large stainless steel stand was fabricated in Building 7012, using a multicraft crew. This job required very good craft skills and teamwork to achieve the required tolerances (1991). ▶



Utilities Department

The Utilities Department provides steam and compressed air production and distribution; of potable water, electricity and natural gas distribution; janitorial and laundry services, sewage collection and treatment; chilled water system operation for the Laboratory; and forest management for DOE's Oak Ridge Reservation.

The Decontamination Laundry provides laundry service for both Laboratory and contractor organizations and cleans noncontaminated clothing and clothing that is contaminated with low-level radiochemicals. Clothing issue and distribution is provided to Laboratory organizations.

The Electrical Distribution and Chilled Water Group operates the Laboratory-wide Electrical Distribution System and the Central Chilled Water System and maintains the Laboratory emergency generators in "ready" condition.

The Forest Management Group manages the forestry activities within DOE's 35,000-acre reservation. Activities include forest plantation establishment and maintenance; land clearing for security, road building, construction purposes, and conservation; sludge application experiments; timber inventories; training, education, and cooperative research; natural resource studies; and backcountry fire suppression.

The Janitorial Services Group provides interior cleaning and window washing services to the Laboratory buildings.

In the past, responsibilities of the present Utilities Department were performed by groups that were assigned to various Laboratory organizations. From 1944 to 1947, the Utilities systems' functions were performed by the Power Department, which was managed by J. D. Renfroe, and by the Laundry and Custodial sections of the Service Department, which was managed by R. A. Wentworth and later by H. R. Bishop. The Laundry and Custodial sections were managed by S. F. Forkner and C. F. West, respectively.

In 1947 the Power Department, managed by J. T. Hill, became a part of the Plant Engineering Division. The department's personnel included M. A. Bugg, E. W. Parrish, M. P. Anderson, H. N. Plemens, T. E. Jones, O. V. Mitts, M. Simmons, D. K. Fleenor, and J. J. Freeman.

In 1948 the Services Department, managed by M. V. Firmin, became a part of the newly created Personnel and Service Division with C. B. McMillian in charge of the Laundry and Custodial Sections. Also in 1948 the Power Department, managed by M. A. Bugg, was organized into the newly created Engineering, Maintenance and Construction (EM&C) Division. Later in the same year, the Power Department became the Utilities Section within the Mechanical Department of the EM&C Division. In 1949, the EM&C Division became the Engineering and Maintenance (E&M) Division; the Utilities Section remained in the E&M Division. Also in 1949 the Personnel and Service Division became the Industrial Relations Division, with the Laundry and Custodial Sections also remaining in the E&M Division.

In 1957, the Utilities Section was moved from the Mechanical Department of the E&M Division to the Laboratory Facilities Section, managed by E. J. Witkowski, of the Operations Division. Also at this time the Laundry and Custodial Sections of the Industrial Relations Division were moved to the Laboratory Facilities Section of the Operations Division. The Custodial Section

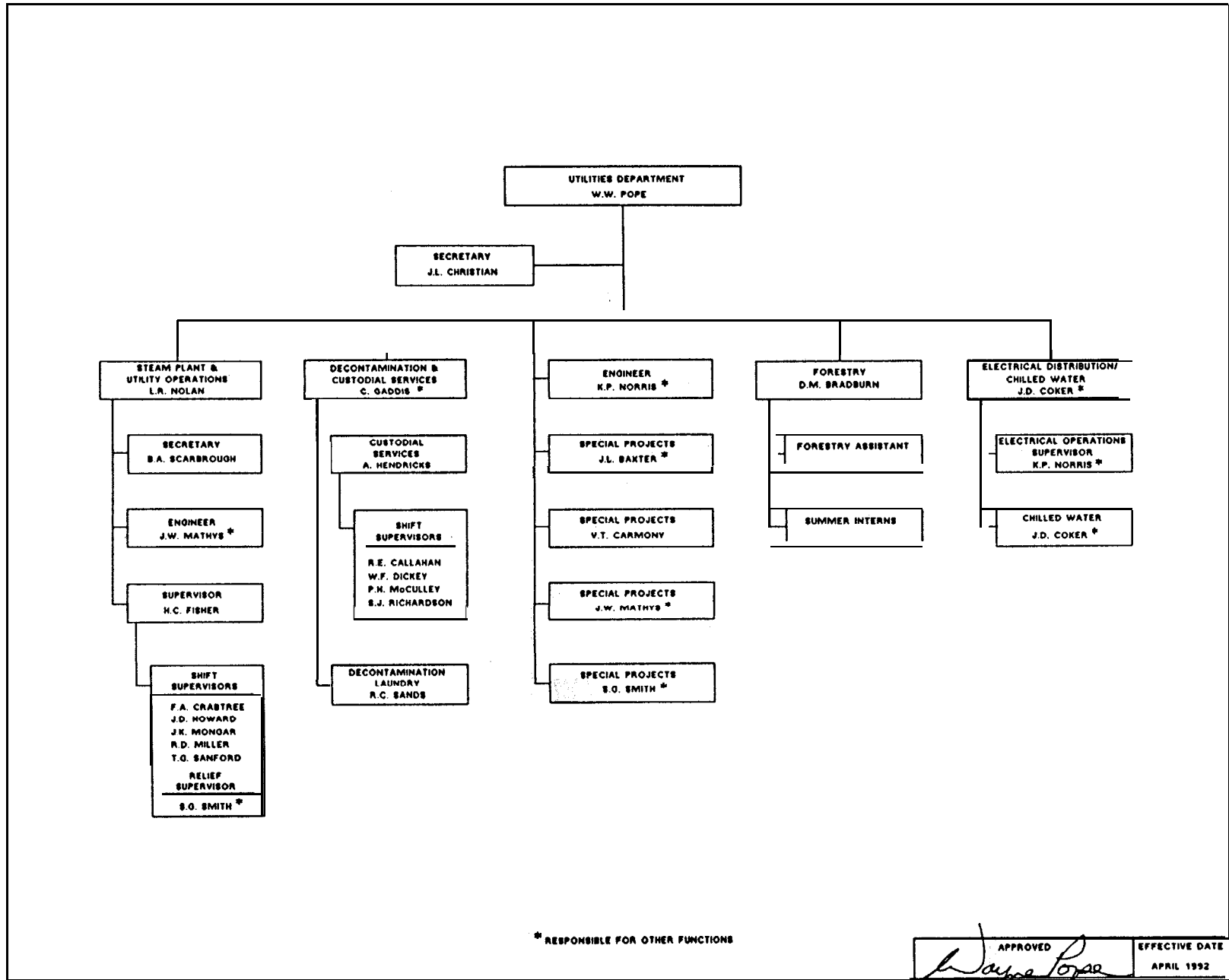
became the Janitor Department, with J. A. Emory in charge. C. L. Taylor was in charge of the Laundry, which by then had become known as the Decontamination Laundry.

The Utilities Section at this time became Steam Plant and Utilities. In 1958, O. H. Sharp became supervisor of the Janitor Department and the Decontamination Laundry. W. A. McGhee at this time was the Decontamination Laundry foreman.

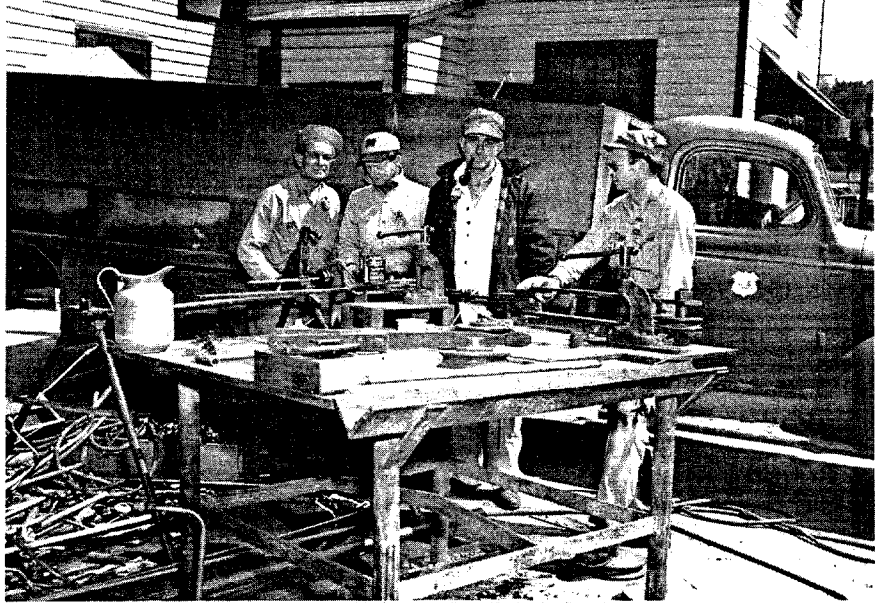
In the early 1960s, the Forest Management Group was formed within the Environmental Sciences Division and continued in this division until it was moved to the Laboratory Facilities Department of the Operations Division in 1982, which was managed by G. J. Dixon. This group joined the present Utilities Department in 1987.

In the early days of the Laboratory, a group known as the Electricians-Refrigeration and Shift Group performed the duties required to operate and maintain the plant electrical distribution and air-conditioning systems and other needs occurring on shift operations. O. T. Sibert, J. C. Packard, and H. J. Klemski managed this group at different times. Shift foremen included C. S. McManus, T. L. Monger, R. G. Norman, R. L. Raulston, R. D. Cox, J. W. Bailey, and R. H. Clary. The group joined the present P&E Utilities Department in 1987.

In 1971, J. C. Elrod became supervisor of the Steam Plant and Utilities Systems and continued in this capacity until his retirement at the end of 1984. In early 1987 the present Utilities Department came into being with the inclusion of the following groups: Decontamination Laundry Services, Electrical Distribution and Chilled Water Operation, Forestry Management, Janitorial Services, and Steam Plant and Utilities Systems. At this time the Utilities Department became one of the five departments within the P&E Division, with W. K. Simon serving as the department superintendent. Other supervisory positions were R. C. Sands, Laundry; H. M. Shearin, Electrical Distribution; D. M. Bradburn, Forestry; C. Gaddis, Janitors; and V. T. Carmony, Steam Plant. The department secretary was T. B. Steele, who served in this capacity until her retirement.



Current Utilities Department organizational chart.



Utility pipefitters. J.H. Copeland,, John Beak Joe H. Fulcher, and Paul V. Stubbs. Beall later became craft supervisor in Central Mechanical Shops (1950).

The ORNL Steam Plant

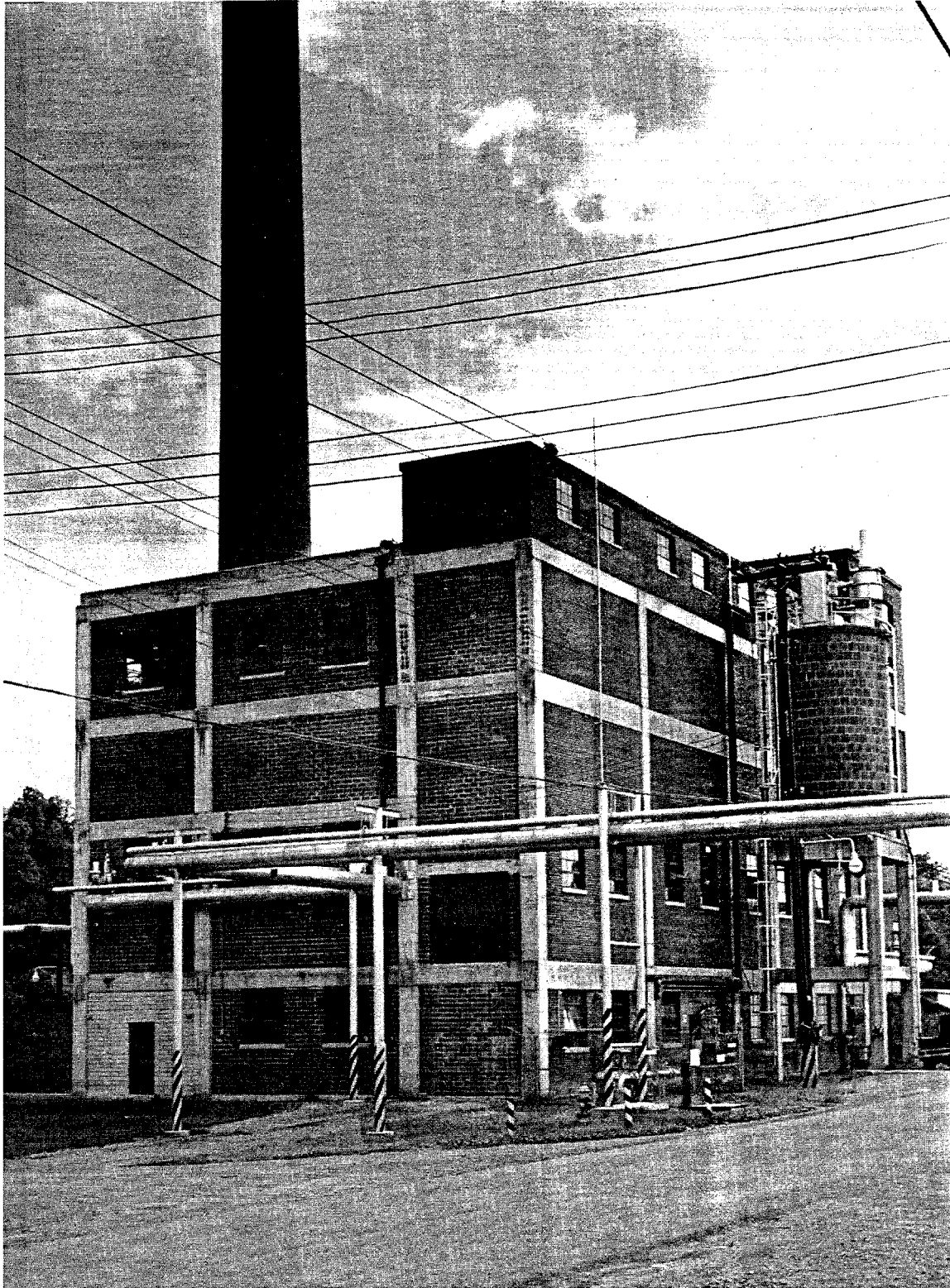
The Steam Plant and Utilities Systems Group provides steam to the Laboratory facilities for process and heating requirements, compressed air is produced, and compressed air, potable water, and natural gas are distributed to Laboratory users; and sewage collection and treatment services are provided to the Laboratory facilities.

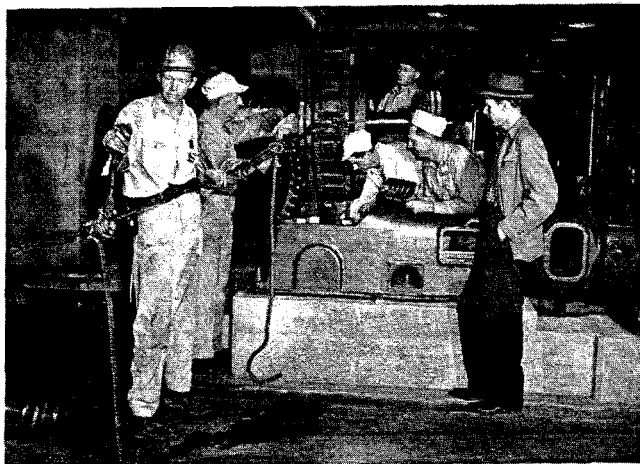
The Steam Plant is presently serving as a pilot program for the implementation of the Martin Marietta Energy Systems, Inc., policy for conduct of operations. This policy reaffirms Energy Systems' commitment to excellence in the conduct of operations as defined in DOE 5480.19, Conduct of Operations for DOE Facilities. The policy states that work activities are to be executed in a formal and disciplined manner that embodies a continual effort to improve performance.

Personnel from Energy Systems' five plant sites have visited the Steam Plant to observe the conduct of operations implemented and to gain insight to aid in the implementation of conduct of operations in their facilities.

In 1990, the Steam Plant received a Distinguished Safety Performance Award that was presented by the ORNL Environmental, Safety, and Compliance Organization for outstanding accomplishments in demonstrating a positive safety attitude, seeking out and correcting potential safety hazards at the Steam Plant and showing pride of ownership by maintaining a clean, safe, and orderly workplace.

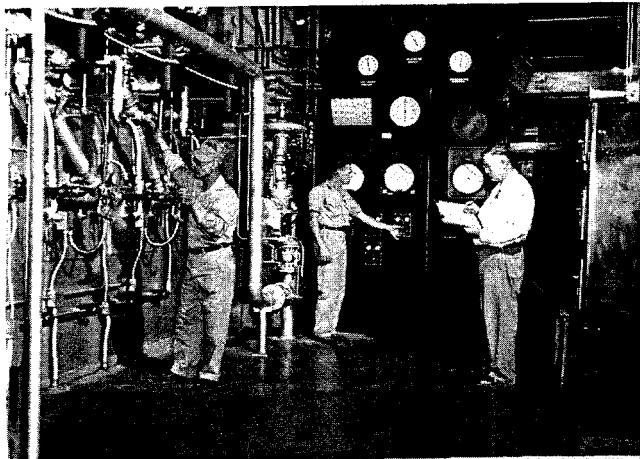
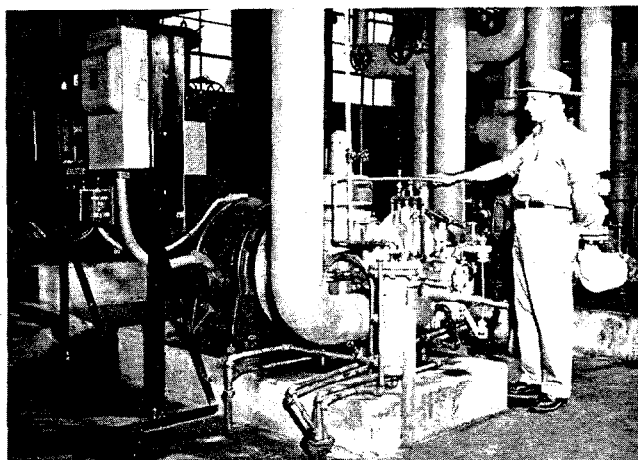
The ORNL Steam Plant in the early 1950s.





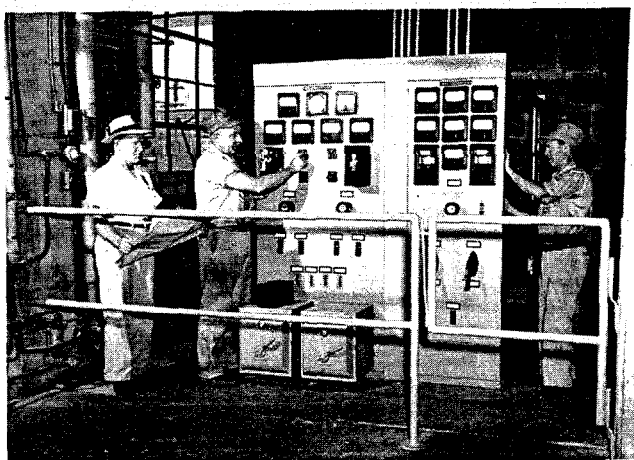
◀ Riggers disassembling an air compressor at the Steam Plant. The men are W. C. Bums, J. Fetiinger, L. B. Casteel, E. W. Hobson, T. D. Johnson, (in background) and C. E. Clayton (1949).

Adjusting a valve on pump in the Steam Plant. Bill Green (1951). ▶

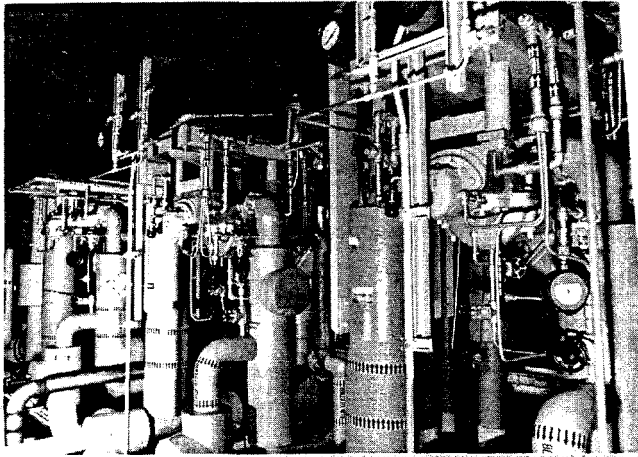
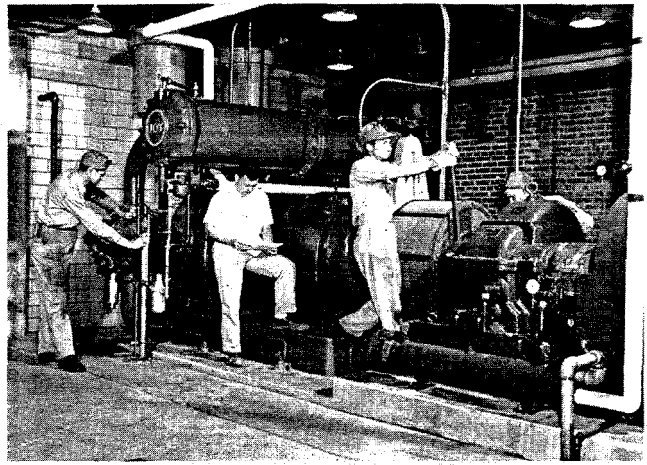


◀ Steam Plant operators at work. J. H. Buck W. K. Russell, and W. D. Bamett (1951).

Workers in the Steam Plant. A. Brewer, J. L. Hutchinson, and G. W. Leever (1951). ▶



Craftsmen working on Joy air **compressor** at the Steam Plant. W. G. Hylton, W. S. Hornbaker, (field engineer), J. S. Woodard, and L. B. Castell (1951). ▶



◀ Steam Plant clean-up of equipment and identification of piping and equipment in Conduct of Operations activities. Note labels on piping to indicate fluid conveyed and direction of flow (1990).

Evolution of the Decontamination laundry, Custodial Services, and Utilities

The earliest records found were those of 1946—the organization charts. Perhaps in the years 1943 to 1946 the Laboratory was somewhat disorganized and it took 3 years to find its direction; or perhaps the earlier records were classified and secreted away and have not been found. Perhaps they have been destroyed.

The Decontamination Laundry has been responsible for cleaning all company-furnished clothing—both “clean” (soiled with noncontaminated materials) and radiochemically contaminated.

The people in Custodial Services are those who clean, mop and wax floors, empty trash cans, and wash windows, light fixtures, and handrails—everything that is required to make the buildings habitable.

The Power Department (utilities) was responsible for operating the steam generating plant and maintaining and operating the electrical distribution system and the underground utilities (air, water, natural gas, and drains). By 1948, all these services were provided by the Mechanical Department of EM&C Division.

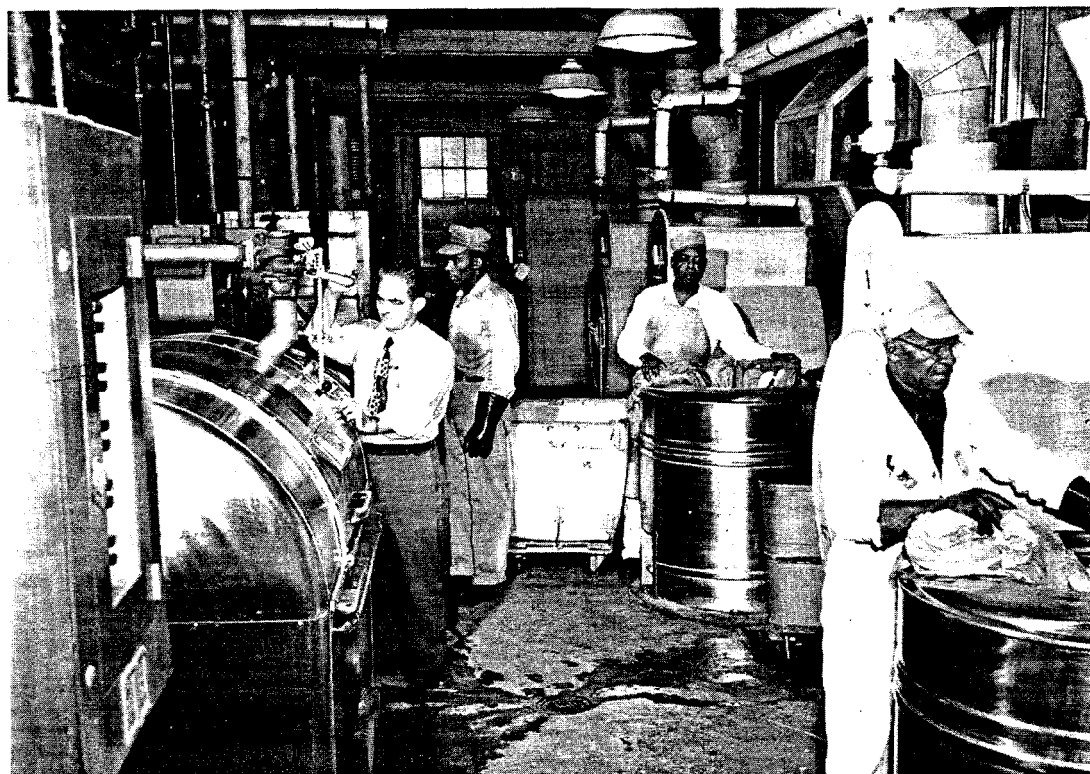
In 1946, both the Decontamination Laundry and Custodial Services were in the Services Department. The superintendent was H. R. Bishop. Reporting to Bishop were Sam Formner, (Decontamination Laundry) and C. F. West, Jr. (Custodial Services). In March 1948, the Services Department became the Personnel and Services Division, which was renamed Industrial Relations Division in July 1949. This division had responsibilities such as the laundry, custodial services, the cafeteria, security, safety and fire protection, photography, housing, recreation, and others, but the P&E history is concerned only with Laundry and Custodial Services because these two were incorporated into that division some 30 years later.

In 1952, the Laundry and Custodial Services departments (supervised by C. B. McMillian) were in the Personnel and Services Department (M. V. Firmin) of the Industrial Relations Division (Firmin served in dual capacity). From 1955 to 1957, the laundry was supervised by C. L. Taylor.

In 1946 the Utilities Department was in the Power Department (J. T. Hill, supervisor) of J. S. Putnam's Plant Engineering Division; the department was supervised by M. A. Bugg and his assistant, E. W. Parrish. The division name changed a number of times, and by January 1957, it was E&M Division with Division Director D. W. Cardwell with Bugg and Parrish supervising. In January 1957, H. E. Seagren was superintendent of Operations Division, and by July of that year, C. L. Taylor's laundry, J. A. Emory's janitors (renamed from custodial; C. B. McMillian being replaced), and M. A. Bugg's utilities (often referred to as the Steam Plant) had been transferred into his division. Parrish remained in E&M Division's Mechanical Department with the electrical distribution and underground utilities. Emory's tenure was short-lived; O. H. Sharp became janitor foreman in 1958 and supervised both the janitors and the laundry when they were consolidated in 1964. Sharp continued in that capacity until his retirement.

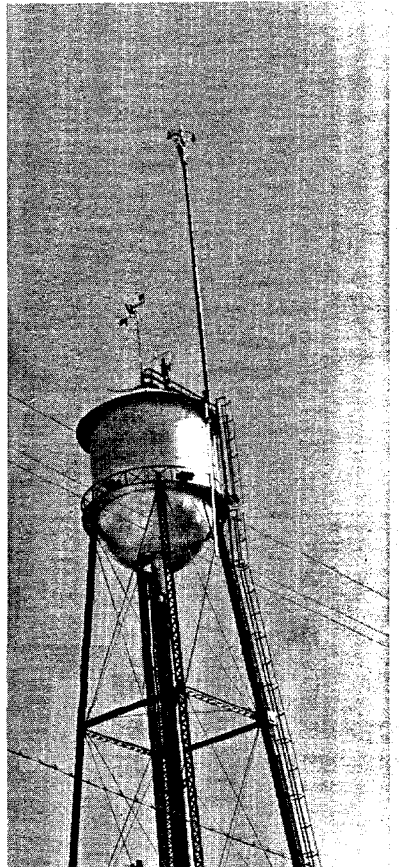
In 1987, the Utilities Department was transferred into the P&E Division. This department (W. K. Simon, supervisor) included utilities (V. T. Carmony), Electrical Distribution/Central Chilled Water Systems (H. M. Shearin), Janitorial Services (C. Gaddis), Decontamination Laundry (R. C. Sands), and Forestry Management (D. M. Bradbum). Forestry Management had its beginning in the Environmental Sciences Division in the late 1960s and was later transferred into Operations Division before being moved to P&E Division in 1987.

Watching clothes as they pass through various processes are W. F. Winton, Joe Coleman, and Oscar Hicks as laundry formen. C. L. Taylor adjusts valve on stainless steel washer (1950). ▶

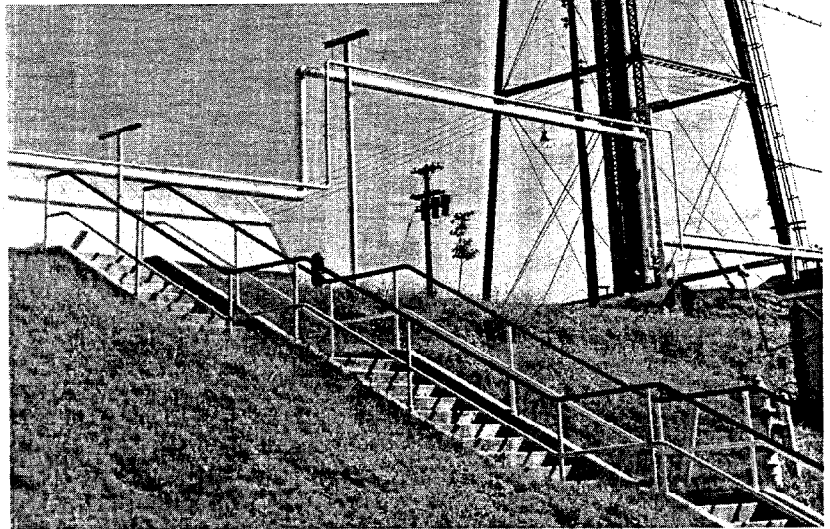




▲ Laundry employees at work in Building 723 enable workers to have clean clothing. Left to right: Flora Henderson, Lucy Hicks, Gladys Ratledge, Irene Brown, Vesta Marks, Lucille May, Carrie B. Wells, Thelma Carter, Marie Baffle, and Emma Mitchell (1950).



Process water/fire protection water tank on hilltop east of 2001 (1943—1965). ▶



Research Services Department

Research Services Department personnel provide services to meet a wide range of customer needs. The department has the primary responsibility for providing the direct craft and technical support for the complex and varied ORNL research and development programs and projects. Secondly, Research Services managers, supervisors, and engineers coordinate the customer support activities provided by other P&E Division groups. The support provided by Research Services Department personnel has contributed significantly to the success of ORNL's reactors, accelerators, pilot plants, hotcells, programs and projects. Among the tasks Research Services staff members have routinely performed over the years are changing and maintaining the level of shielding fluid in hot cell windows, maintenance of hot cells and manipulators, maintenance of nuclear reactor systems and experiments, and special projects support ranging from in situ vitrification and acid rain deposition to high temperature materials studies. The dedication and expertise demonstrated by personnel in Research **Services Department** have been and continue to be an important contributing factor to the success of **ORNL's** programs and projects.

Research Services was formed in April 1967, under the management of K. E. Jamison. The area manager concept was initiated at this time. Under this method of operation, the area manager was responsible for manpower allocation and field engineering support of a specific geographic area of the Laboratory.

The first area managers were P. W. Hembree (east area), A. L. Allen (west area), and H. H. Nichol (south area). Under the supervision of these three area managers were the craft superintendents who worked with the field engineering group leaders: R. G. Jenness and C. E. Murphy (east area), H. H. Haymond and M. A. Baker (west area), and D. T. Dice and F. A. Heddleson (south area). It was the crafts people's task to do the programmatic "hands-on" work for research personnel within their area, and the field engineers supported them in their work either directly (by design, material procurement, etc.) or by liaison with P&E personnel in other departments. Field engineering was supervised by W. F. Buker, department superintendent.

The east area (Hembree and Jenness) included the Transuranium Research Laboratory (TRL, Building 5505); the Cyclotron Facility (ORIC, Building 6000); the manipulators; Metals & Ceramics (M&C) Division (4508 and part of 4500-S); Instrumentation and Controls (I&C) Division (3500); Buildings 3504, **3508, 4500, 4501, 4507**, and the High Voltage Laboratory (5500); and the remainder of Chemical Technology Division (CTD) in Bethel Valley.

The west area (Allen and Haymond) encompassed the Isotopes Division, the Operations Division's research **reactors and** hot cells **located in** Bethel Valley (main Laboratory site), Health Physics and Solid State divisions, and a portion of CTD.

The south area (Nichol and Dice) **facilities**—those in Melton Valley (south of the main Laboratory site)—were the Transuranium Processing Facility, Thorium-Uranium Fuel Cycle Development Facility, High-Flux Isotope Reactor (HFIR), Thorium-Uranium Research Facility, Molten Salt Reactor Experiment, Nuclear Safety Pilot Plant (NSPP), Health Physics Research Reactor, Tower Shielding Facility, and other associated facilities and buildings.

In 1973, R. M. Farnham became manager of both the Fabrication and Research Services departments. The position of lead engineer was abolished, and the field engineers were placed directly under the area managers. W. F. Buker became department superintendent (field engineering) over the three area managers, the general plant group, and plant operations specialists (a group of engineers with expertise in a particular engineering field), and special assignments-Quality Assurance (QA) (R. J. DeBakker) and Occupational Safety and Health (OSHA) (C. E. Murphy). R. M. Farnham continued to supervise Jenness, Baker, and Dice who were the general craft supervisors in the east, west, and south areas.

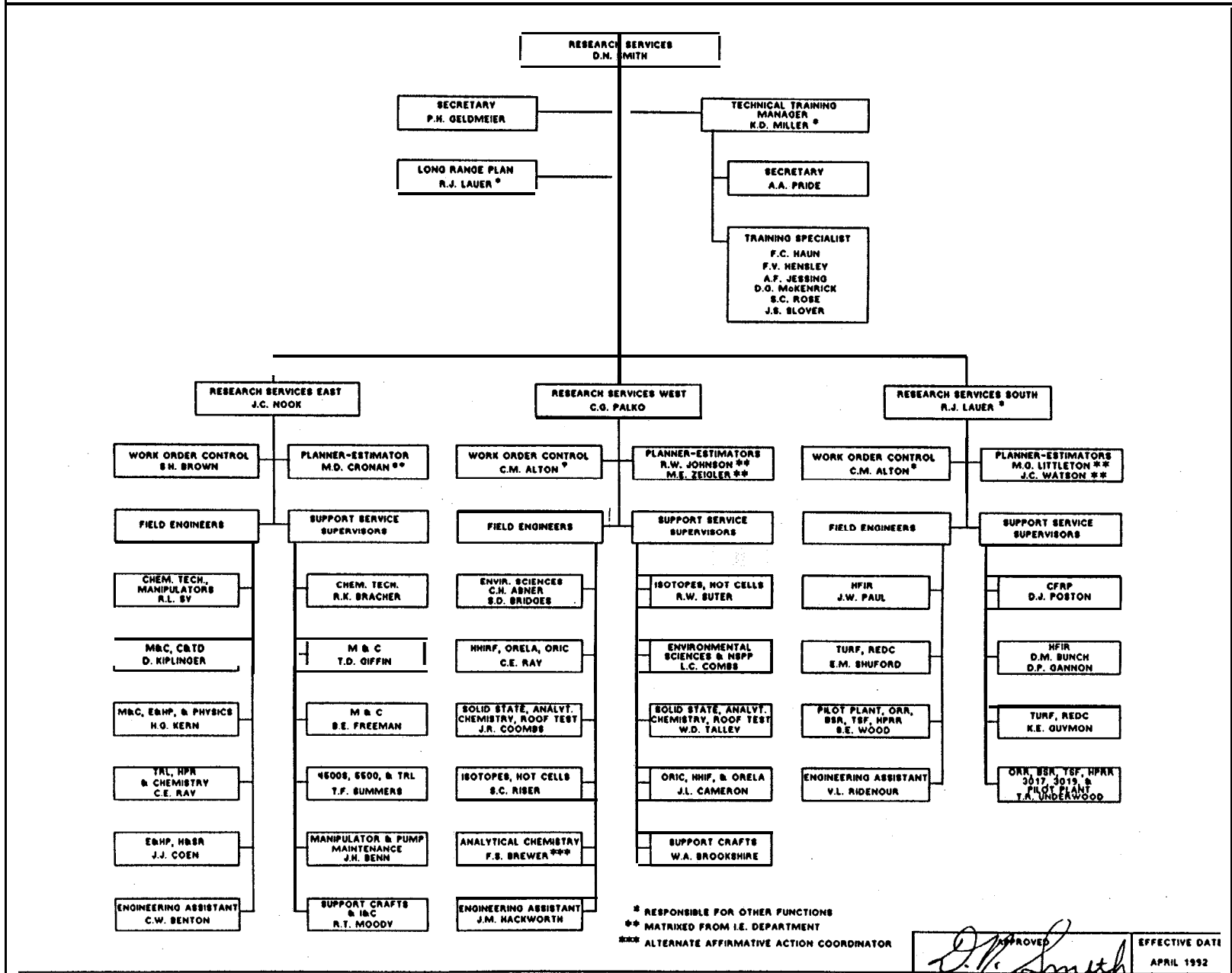
In July 1979, the division underwent a major reorganization that resulted in L. M. Cuddy becoming superintendent of the Research Services Department; C. L. Fox became Field Engineering Department superintendent; W. F. Buker became head of Technical Staff (telecommunications, energy conservation, space coordination, safety, OSHA, and quality assurance).

In 1981, L. M. Cuddy transferred to another division, and field engineering, no longer having department status, was divided between the Research Services and Plant Services departments. D. N. Smith became head of Research Services and C. L. Fox head of Plant Services.

In 1990, after the Technical Safety Appraisal (TSA) and Tiger Teams visited the Laboratory and recommended that the employees needed additional training for their jobs, the technical training manager (K. D. Miller) was assigned to the Research Services Department to manage training of all P&E employees.

Others who served in Research Services, either as managers or general supervisors of crafts personnel, were L. L. Leavell, R. J. Lauer, J. C. Nook, W. W. Pope, J. L. Hammontree, and C. R. Kirkpatrick.

Craft supervisors in Research Services have been R. F. Stone, W. T. Wolfe, C. D. Wicker, J. R. Keys, T. E. Duff, L. R. Sullivan, V. A. Emert, A. W. Herrell, H. E. Trotter, R. P. Beard, R. D. Stokes, R. L. Leinart, T. B. Jernigan, A. D. Higgins, H. H. Tuck, J. B. Henry, G. E. Long, J. E. Bentley, J. Keeney, R. T. Moody, B. E. Freeman, B. R. Scarborough, C. R. Kirkpatrick, J. E. Arwood, J. L. Trout, J. M. Odom, Jr., C. G. Shorter, R. E. Hicks, M. R. Dew, J. H. Benn, Jr., J. W. Fox, Jr., L. C. Combs, R. K. Bracher, R. W. Suter, D. J. Poston, J. L. Cameron, D. M. Bunch, D. P. Gannon, K. E. Guymon, T. R. Underwood, W. A. Brookshire, T. D. Giffin, T. F. Summer, E. W. Castleberry, and E. H. Hudgens.



* RESPONSIBLE FOR OTHER FUNCTIONS
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 *** ALTERNATE AFFIRMATIVE ACTION COORDINATOR

APPROVED *D.N. Smith* EFFECTIVE DATE
 APRIL 1992

Current Research Services organizational chart.



◀ **West Research Services Group, February 1969.** Seated: Vic Emert, Ray Stokes, Larry Allen, Elaine Bullock Bob Robson, Sam Gheesling, and Albert Herrell. Standing: Ron Strange, Frank Keylon, Leon Ridenour, George Scott, Bruce

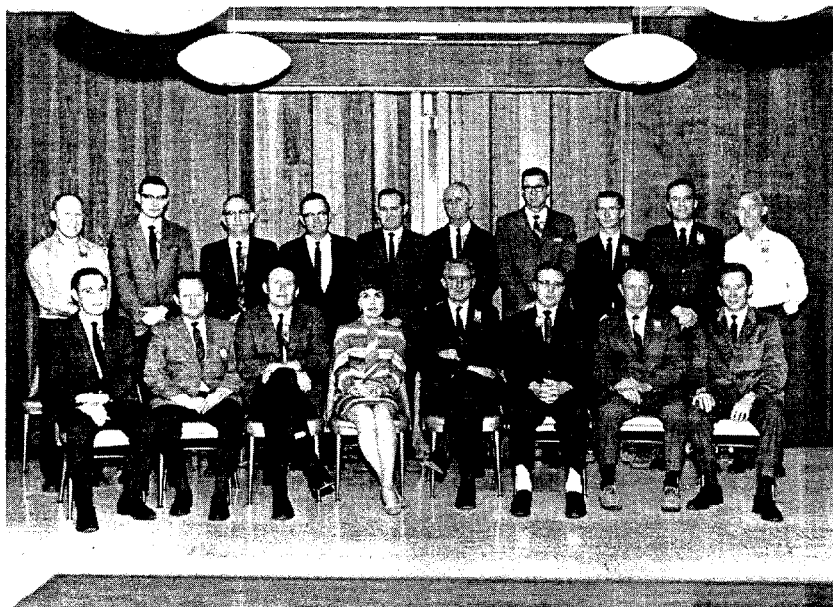
Wilson, Jim Gibson, Paul Parker, Tom Duff, Bud Baker, Don Kiplinger, Hobart **Haymond**, Lenley Brown, Stanley **Larkins**, Ernie Hobson, Harry Trotter, Pittman Beard, Luther Leavell, and Gerald Pierce,

East Research Services Group, October 1969. Seated: Bill Wolfe, L. R. (**Stacky**) Sullivan, Charles Wicker, Russ Jenness, Bet-l-y Hill, Martha Bowers, Tom Higgins, and Fred Eggers. Standing: Perry

Hembree, Ken Dyer, Jim Parrish, (unidentified), Charlie Brown, Ernie Earley, Dave Allen, Bob Ford, Jim Bentley, Bill Longaker, John Keys, J. D. Flynn, E. L. Benedict, Sam Hunt, and Charlie Murphy.



Engineering and Maintenance mechanics. J.R. Hutchison and J. E. Drinnon install fluorescent lamps that provide artificial light for Isotopes Division/Biology Division's isotope farm apparatus (1949). ▶



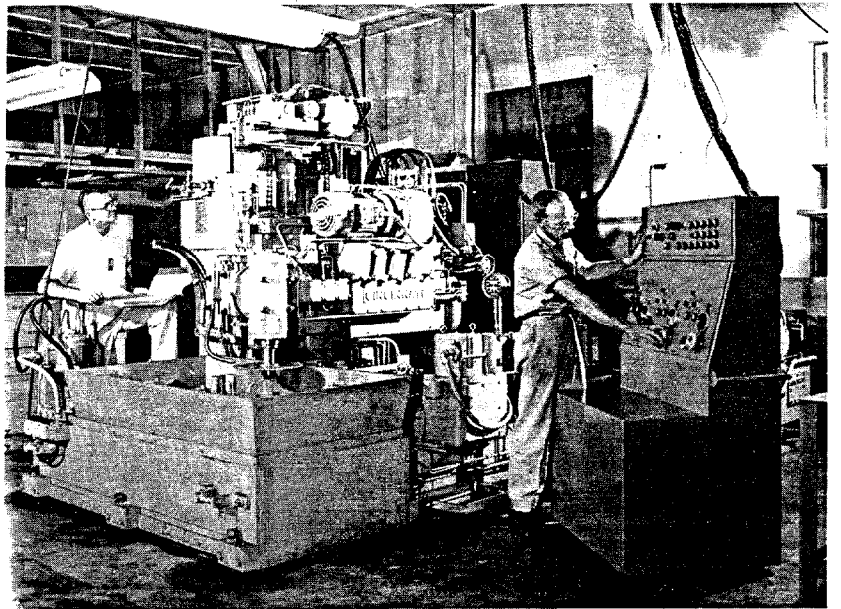
▲ South Research Services Group, April 1969. Seated: Harry Nichol, Ed Shuford, Bob DeBakker, Don Dice, Tom Jernigan, Pete Leinart, and T. C. Minton. Standing: Henry Tuck Greg Kern, Hugh Felts, Russell Jackson, Wayne Paul, C. P. (Mack) McWright, Dewey Todd, Dick Freeman, Hank Grimac, and Joe Henry.



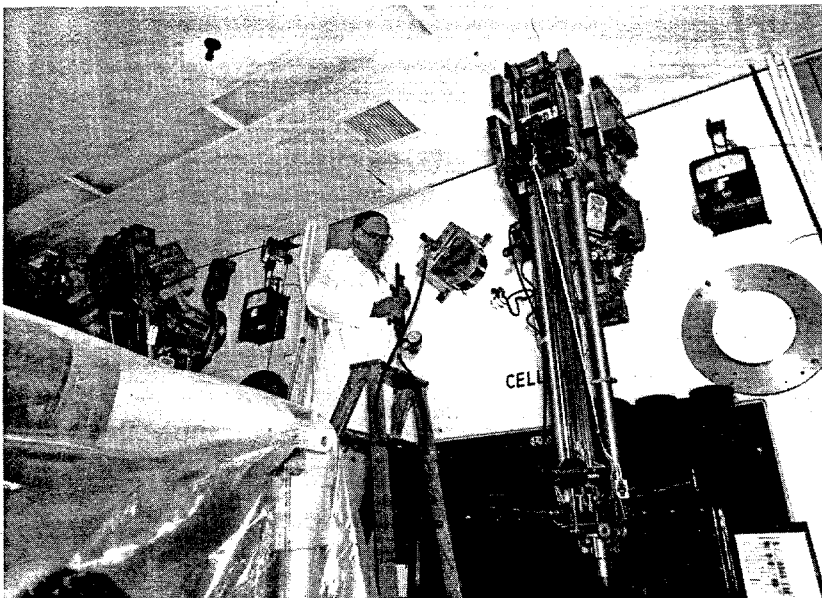
▲ Craftsmen enrolled in the Molten Salt Reactor Experiment training class learn to **perform** remote maintenance on the reactor. The men are practicing the use of long-handled tools through thick shielding. The instructor for this phase of the training is W. D. Todd, P&E Division. Trainees (left to right) are C. E. Hollifield, J. M. Hackworth, J. T. Maples, C. E. Fritz C. J. Houser, C. E. Mashburn, J. Keeney, A. B. Slusher, and F. M. Barnes, all P&E personnel. (Source: The News, April 21, 1967.)



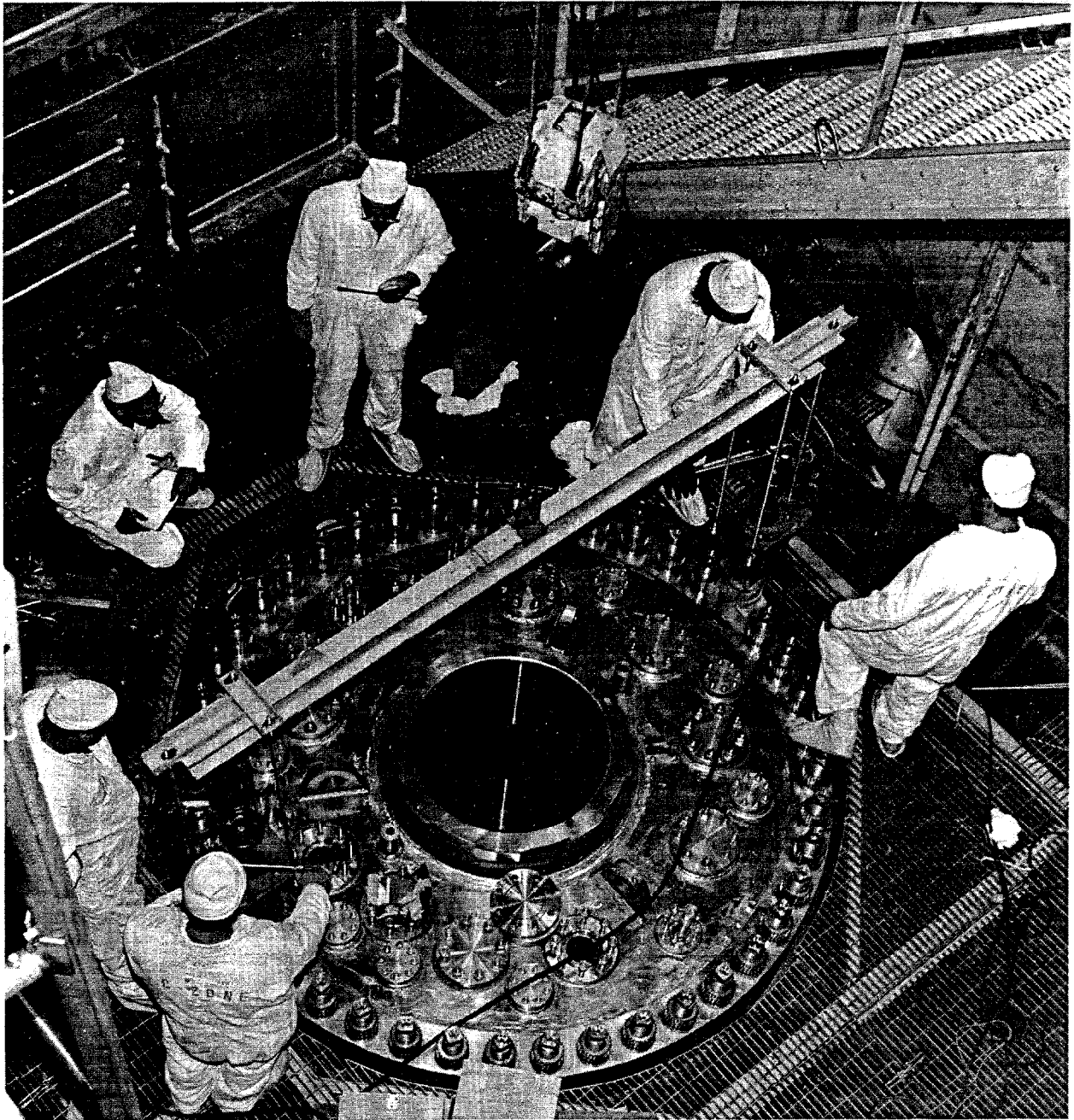
Checking out a new milling machine that is to be installed in the new High Radiation level Examination Laboratory, (Building 3525). D. L. Holcomb and H. G. James (1962). ▼



▲ Maintenance of charcoal filters (replacing charcoal) that remove chlorine from process water used in aquatic experiments (Aquatic Laboratory, Building 1504). Bruce Bennett (left) and LeRoy West (1990).



◀ Assisting in replacing manipulator in a hot cell. Doyle Garrett (1989).



A Craftspeople replacing HFIR reactor vessel top head studs **following** beryllium replacement (1976).

Industrial Engineering Department

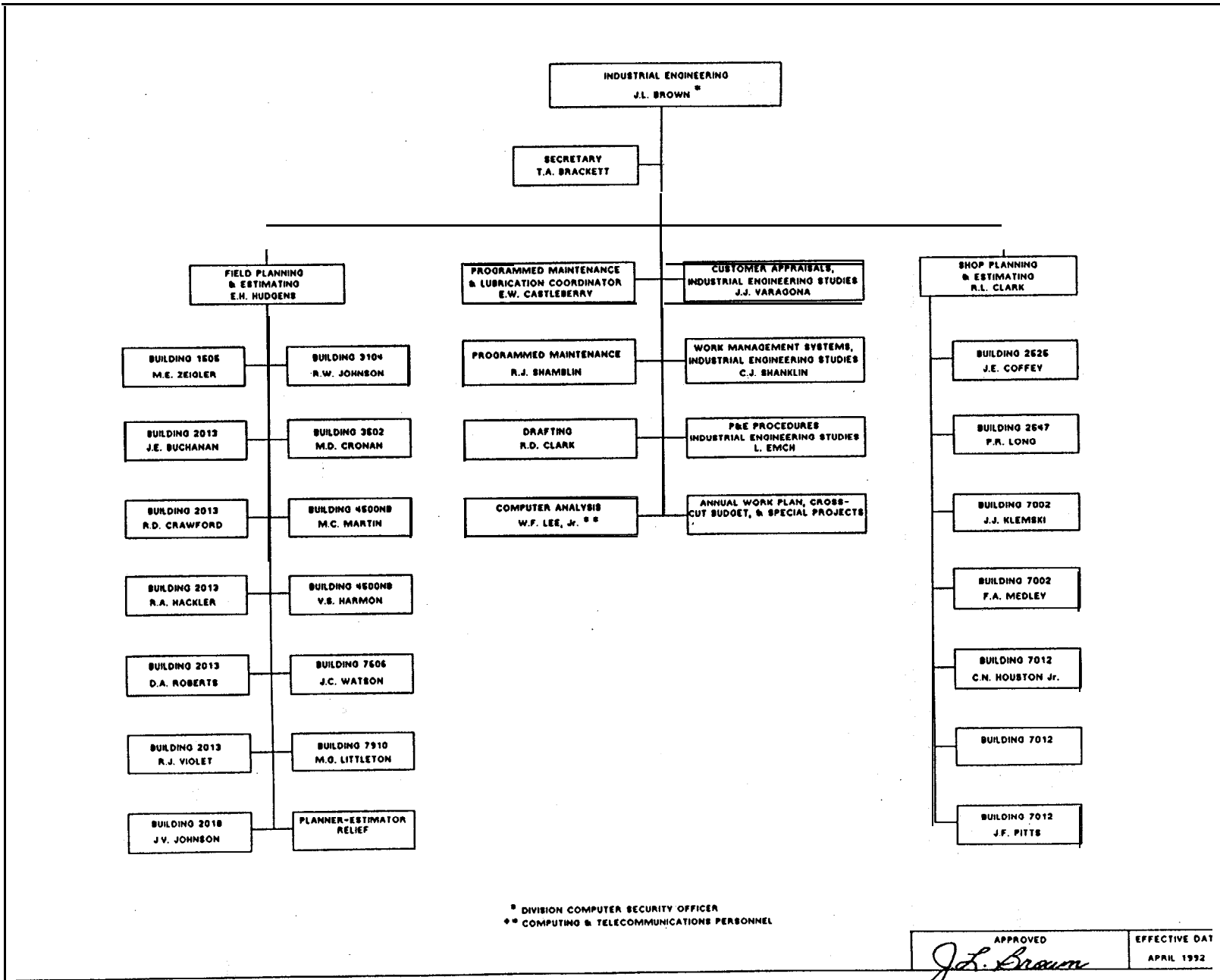
Industrial Engineering activities were initiated in 1959 in the Planning and Standards Department with Wells M. Stanley (one of the first field engineers, 1947) as manager. The department was renamed Industrial Engineering in 1962 and, in 1963, it became Facilities and Standards Engineering. Stanley remained as manager until 1964 when General Engineering and Construction Division was formed from the design portion of E&M Division. The name was changed again in 1964, becoming Operations Analysis Department supervised by Gerald F. R. Johnson.

In 1964 Union Carbide Corporation purchased the A. T. Kearney Work Measurement System as a standard estimating system for craft work activities. Joe Varagona, Kenneth Dripps, and a core of planner-estimators were trained in the Kearney system and given the task of instituting the system in the Fabrication Department. By 1972, the system was in use to some degree by all departments.

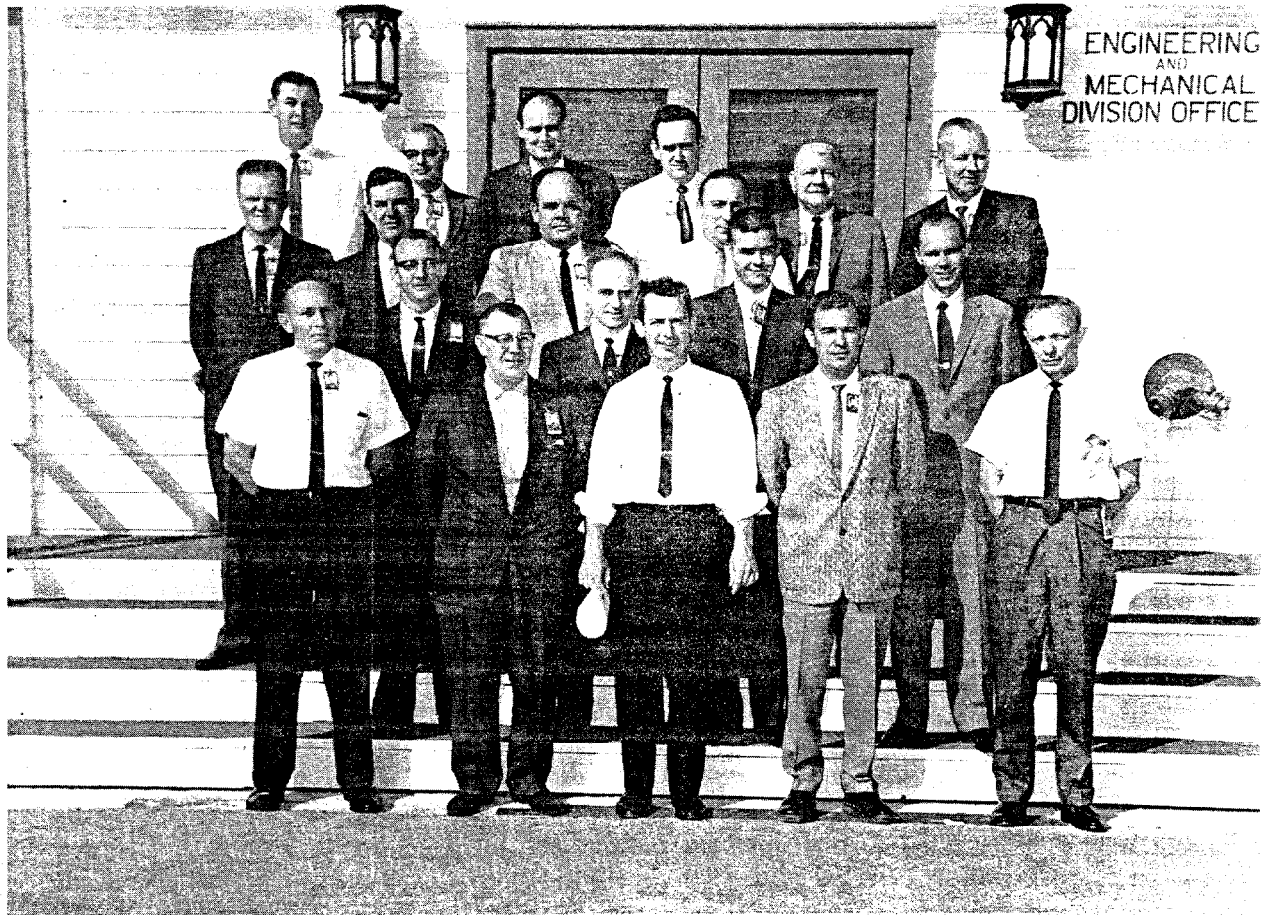
Others who have managed industrial engineering activities in the past have been Dan C. Tuxbury, W. O. Graves, G. F. R. Johnson, G. H. Johnstone, H. B. Bowen, and C. R. Sherlin. Under their direction, the industrial engineering function has steadily expanded to its current level of activity—P&E Work Management System, division computer security, programmed maintenance, and scheduling. Under Bill Graves' direction, the development of a very comprehensive programmed-maintenance system was a significant achievement. A modified version of the system remains in use and is currently being directed by E. W. Castleberry.

To achieve consistency in work management practices, the planner-estimators throughout P&E Division were placed under the purview of the department in 1989, and E. H. Hudgens and R. L. Clark were selected to supervise them.

Various studies and other activities, including administering the Work Management System, are being capably handled by Lisa Emch and Cheryl J. Shanklin, who are industrial engineers assigned to the department.



Current Industrial Engineering organizational chart.



▲ Planner-estimators receive certificates in 1963: Front row, left to right: J. W. Brashier, Henry Klemski, Kenneth Dripps, J. W. Jackson, and Herman James. Second row: Herman Lloyd, Joe Varagona, Lenley Brown, and J. C. Johnston. Third row: Jack Baskette, J. T. Gray, D. R. Frizzell, and Herb Cox. Back row: Joe Ward, Clifford Burchsted, Wells M. Stanley, C. R. Rickard, J. Earl Longendorfer, and H. E. Seagren.

Field Engineering

Field engineers historically have been the link between personnel of all divisions of the Laboratory, primarily between the researchers and the craft personnel who accomplish the fabrication, assembly, utility connections, repairs, maintenance, and whatever else is required to make an experiment, piece of equipment, building, etc., operate and keep it operating. They have been called field engineers, assistant area engineers, program engineers (programmies) and, perhaps, other names, but the service they perform has changed little in all the years since 1943 when Clinton Laboratories was first established.

These engineers, whatever their title, being the primary contact between the craftspeople and the research staff, have been deeply involved in the work with the research division "customers" since the early days of the Laboratory. The work has been extremely varied; they have worked as building design engineers and have overseen construction of buildings. They have become experts in vacuum system technology; heating, ventilating, and air conditioning (HVAC); electrical, steam, water, and compressed air distribution systems; and with the coming of Tennessee water quality laws, building and Laboratory effluent drainage. They have been the people contacted if an office needs painting, if a water pipe springs a leak, if a piece of research equipment is to be fabricated, if a cell window needs

replacing, if the roof needs repairing, if a window is broken, if a power cord needs replacing, if a tower needs to be bought and erected; and if an exhaust fan doesn't work. ". . . if you have a problem and don't know who to call, contact your field or program engineer."

The earliest record found is the organization chart of the "Operating Departments" dated January 1947; of interest is the Mechanical Department (J. S. Putnam, superintendent; and E. P. Cunningham, assistant) when the title was assistant area engineer and the supervisor was area engineer, Frank W. Clay. Other sections of this department (Central shops, Labor and Transportation, and three unnamed) were headed by either area engineers or an engineer of a particular discipline (mechanical or electrical). Clay was head of the "Restricted Area" section; his engineers were G. O. Ricker, W. M. Stanley, G. W. Forsyth, and K. E. Jamison. Another assistant area engineer, W. S. Hornbaker, was in the Special Assignments section working for Cunningham. A change in the organization occurred in which Cunningham became superintendent, and Clay's section became Shop and Field Services. Both Putnam and Cunningham were Monsanto employees and apparently went with that company when Carbide and Carbon Chemicals Corporation became contractor for ORNL in 1948.

In March 1947, there were seven assistant area engineers-E. P. Jackson, H. H. Nichol (transferred from the Y-12 Plant), and W. E. Sholl were added to the earlier four. These engineers were assigned buildings/services and/or research divisions as areas of responsibility. For example, Harry Nichol was responsible for butane gas storage and the west wing of Building 706A (chemistry building, now Building 3550); Wells Stanley had Buildings 206 (Tank Farm, Building 3507); Settling Basin, (Building 3513); and Process Waste System Basin (Building 3524) and Buildings 706 C&D (these two are now Building 3026 C&D, Radioisotope Development Laboratory and Hot Cells), and 735B (Building 3022, demolished 1961) and Cell 5 of Building 205 (Radiochemical Processing Pilot Plant, Building 3019); Ken Jamison was in charge of Building 205 (Building 3019) except Cells 1, 2, 3, and 5; and Buildings 101 [machine shop associated with the Graphite Reactor (then Building 105, now Building 3001)], 204, 704A, and 717M. By 1960, only Jamison, Nichol, and Stanley remained at the Laboratory. Both Jamison and Nichol later became associate division superintendents, and Stanley became a laboratory shift supervisor and eventually department supervisor in the General Engineering and Construction Division (GE&C was earlier the Planning and Design Department in the P&E Division and became a division in 1964).

In 1954, in the Mechanical Department of E. W. Parrish, the lead engineer group was formed headed by Jamison and Nichol, and under the leadership of each were five or six engineers. When Nichol became supervisor of Field Support, J. R. Gissel became lead engineer. By 1957, other names in this group were N. E. Dunwoody, Hank **Grimac**, W. S. Hombaker, J. P. Miser (the Utilities engineer who knew from memory where most of the pipelines were buried), W. E. Sallee, O. H. **Freeland** [**Ottis** later became responsible for hot labs in Operations Division (1962) and still later Governor Ray Blanton's personal administrative assistant], W. H. Longaker, R. F. Hunt, R. E. Harris (Dick went on to work in the Tennessee Department of Public Health), B. W. Glass, A. M. Clark, F. H. Greene (became manager of a Western Auto store in North Carolina before moving on to Shippingsport, Pennsylvania), P. A. Young, D. M. Shepherd, R. J. **DeBakker**, D. Brogan, D. T. Dice, C. L. Fox, P. W. Hembree (who in 1956 became lead engineer when Gissel moved to assistant to the superintendent), R. E. Peden, Eric Wischhusen (who left the Company about 1954 to establish Ridge Valve and Fitting Company), and co-op student W. H. **Carden**.

In January 1957, the Field Engineering Department was formed with the same lead engineers, (now called supervisors), and a number of new engineers were added over the next two years

(M. A. Baker, C. B. Brown, J. W. Fields, W. Grove, J. P. Jarvis, R. E. Peden, R. B. Pratt, G. F. Strawn, W. T. Flukinger, R. G. Jenness, H. F. Keesee, N. J. Lindsay, C. E. Powell, G. E. Pierce, R. C. Sexton, and two co-op students, S. J. Grubb and C. R. Webb).

In 1960, H. E. Seagren, superintendent of the Engineering and Mechanical Division, completely reorganized the division. He established the Program Engineering section under W. F. Buker in 1960 and placed it in the Planning and Design Department (the engineering side of the division), headed by Gibson Morris, where it enjoyed department status until the P&E Division was created in 1963. Then the section was moved to staff position with Gib Morris (engineering) and Earl Parrish (mechanical) as assistant division superintendents. The Program Engineering group leaders were M. A. Baker, P. W. Hembree, F. A. Heddleson, W. S. Hornbaker, R. K. Browning, and E. G. Tirpak. More new program engineers entered the division—J. P. Sallee, B. W. Wieland, W. W. Baker, R. J. Robson, J. W. Paul, E. R. Dobyns, J. D. Flynn, E. M. Shuford, S. R. Larkins, H. H. Hamilton, E. H. Balentine, W. A. Lowry, L. Dusina, R. B. Mizelle, W. H. Kennedy, L. L. Leavell, H. H. Haymond, K. E. Toomey, C. H. Abner, J. A. Murray, E. C. Fortunato, D. W. Hickman, S. E. Gheesling, and J. W. Kittrell.

In the early 1960s, program engineers worked in dual capacity—one being the coordinator with research divisions and the other being liaison engineer interfacing between the project engineer and research personnel on building construction. C. E. Murphy was the engineer assigned to the construction of the High Voltage Laboratory Addition (Building 5500), and upon its completion, the assembly of the IO-million electron volt Tandem Van de Graaff accelerator housed therein. D. M. Shepherd was involved in the construction of the High-Flux Isotope Reactor (HFIR, Building 7900) and the High-Radiation Level Examination Laboratory (HRLEL, Building 3525); R. E. Peden was with the Oak Ridge Isochronous Cyclotron (ORIC, Building 6000). R. C. Sexton was liaison engineer on the High-Radiation Level Analytical Laboratory (HRLAL, Building 2026) and was instrumental in the development of the Shale Fracturing Experiment, a method of disposing of high-radiation level liquid wastes in underground shale formations. R. B. Pratt directed the relocation of the Metallurgy (later renamed Metals and Ceramics) Division from Buildings 2005 (later demolished and present site of Building 2026), 2000 (a quonset structure built in 1947-48 and still in use in 1992), and 2011 (original steam plant) into their new buildings [Buildings 4500 South (Wing 1) and 4508]—the Laboratory's first (and only, at that time) million-dollar move.

About 1962-63, the Quality Assurance (QA) Program was adopted by the Laboratory, and the DCX accelerator was one of the first projects to have QA; S. R. Larkins, was the program engineer.

Until 1962, buildings were not properly maintained. The occupants of buildings were responsible for maintaining the structures they inhabited. Because their primary objective for working at the Clinton Laboratory was to do research, the research divisions often were more inclined to direct their funds toward that end to the detriment of their buildings. In 1962, the Programmed Maintenance Department (managed by W. O. Graves) was created, and its mission was to conduct a maintenance program that would ensure that the facilities of the Laboratory were kept in good repair. This program was later extended to include research equipment. Before a computer-based maintenance file could be developed, each structure and all the necessary equipment for its operation had to be inventoried. Field engineers were instrumental in doing this inventory for the initial programmed maintenance schedule and have been keeping it up to date since then.

In the early 1970s, the Organization of Petroleum Exporting Countries (OPEC) (an organization formed in 1960 by a group of nations that export large quantities of petroleum; the purpose was to

establish oil-exporting policies and set prices), began setting quotas on exports to drive up prices of crude oil. In response, the United States began seeking ways to reduce dependence on foreign countries for sources of energy. In 1974, the first ORNL Energy Conservation officer, a field engineer (C. E. Murphy), was appointed to find ways for conserving energy at the Laboratory; he remained in this position until 1981.

In 1981, C. H. Abner (field engineer) designed and directed the assembly of an experiment at Area 0800, a **50-acre** plot of river-bottom land near Jones Island on the bank of the Clinch River, for Environmental Sciences Division to study the responses of crops to acid rain and gaseous pollutants for the Electric Power Research Institute. This experiment was to serve for 3-years duration and then be dismantled; after 10 years, it is still being used for work with other agencies. A more detailed description of this project is found in another part of this history..

In the late **1980s**, J. W. Paul was the field engineer responsible for bringing the High Flux Isotope Reactor (HFIR, Building 7900) and the Tower Shielding Facility (TSF, Building 7700) into compliance with recommendations of numerous review committees and upgrade of security of the Health Physics Research Reactor (HPRR, Building 7709).

The General Engineering and Construction Division was formed in 1964, becoming separated from the P&E Division, and program engineering again became field engineering (in the P&E Division) with Ken Jamison the assistant superintendent. Field engineering was relieved of the task of liaison with building contractors and the local cost-plus-fixed-fee contractor (Rust Engineering Company) when GE&C Division formed the Construction **Engineering** Department.

Other Field Engineering personnel to come onto the scene in later years include D. B. Allen, V. L. Ridenour, P. G. Parker, E. L. Earley, T. C. **Minton**, L. D. Odom, G. H. Scott, D. Kiplinger, J. R. Gibson, R. R. Arp, H. M. **Shearin**, E. L. Benedict, J. W. Mathys, Ken Dyer, G. F. R. Johnson, G. W. Tyler, H. G. Kern, C. W. **Benton**, R. J. Lauer, R. L. Sy, C. E. Ray, J. J. Coen, S. D. Bridges, S. E. Wood, J. R. Coombs, S. C. Riser, Faye Snipe Brewer, J. M. Hackworth, R. R. Stephens, G. A. Irby, R. P. Brendle, M. F. **Mayes**, J. D. Reynolds, C. G. Palko, C. W. Ayres, R. K. Holmes, W. W. Henderson, B. D. Martin, F. F. Mary, D. Foster, G. T. Alley, J. W. Loy, E. F. Roy, W. D. Todd, T. E. Lowery, P. G. Parker, J. C. Boatner, R. M. Freeman, D. J. **Inman**, A. L. Allen, H. C. Brown, J. H. **DeBusk**, Regina Monday, B. K. Millsaps, and others.

Many secretaries were instrumental in keeping the engineers steady on course; to name a few (several)-Volena Foster, Ada Misek, Clara Stowell, Audry **McBee**, Rita Fletcher, Judy Keeney, Patsy **Creech**, Alice Davison, Betty Hill, Lucille Kessinger, Jo Ruffner, Nancy Tucker, Betty Jones, Elsie Pickell, Elaine Collins, Billie Corum, Janet **Whitson**, Peggy H. Geldmeier, Sue McKenzie, Vickie Martin Bunch, Janie Ross, Connie Pruett, **Stacey** H. Brown, Betty **McCown**, Edna Smith, Martha Bowers, and still others whose names are recorded in the minds of those people whose fortune it was to have worked with them.

The names of these many people are mentioned to stir the memory of the reader to recall past times and those people who often helped make the division a good place in which to work.

P&E ACCOMPLISHMENTS

Crop Responses to Acid Rain and Gaseous Pollutant Exposure

In 1981, Environmental Sciences Division was awarded a contract by Electric Power Research Institute to perform experiments to ascertain the nature of crop responses to combinations of acid rain and gaseous pollutants. The site selected for this project was Area 0800, a flat floodplain of some 50 acres on the northeast bank of the Clinch River, downstream of White Oak Creek and Melton Hill Dam. This site was very suitable because it had been restored to the “farmland” status it held before it was taken for the defense effort of World War II.

The layout of this project was four rows of nine plots (total of 36) whereupon 12 treatments were applied. On a portion of these plots, open top chambers—light metal frames 10 feet in diameter and 8 feet high enclosed with specially designed transparent plastic material on the sides—were used. Three different gaseous treatments were introduced into the plots: charcoal-filtered air, nonfiltered air, and ambient air plots without chambers. Four rain treatments were introduced on selected plots—natural rain and three acid solutions (simulated “rain” of acidic pH 5.2, 4.2, and 3.2). Natural rain was excluded from the plots that received acid solutions. A rain sensor automatically covered those plots with a movable panel while simultaneously starting acid solution dispensing pumps. At the end of the rainfall event, the pumps stopped and the cover panels returned to the open position.

This experiment was designed by the P&E Division’s Research Services field engineer assigned to the Environmental Sciences Division. Although the air/filter fan units and chamber frames were designed and used by other agencies for earlier experiments at other places, their design was adapted for this job. The frames and fan units for this site were fabricated by local metals fabricators under the direction of the field engineer. The existing electrical utilities at Area 0800 were upgraded by the P&E Electrical Department for this experiment. Although this experiment was designed for a 3-year program, it has been used for experimental work for other governmental agencies in all but two seasons since its construction.

Research Services staff members built these chambers for acid rain studies in the 1980s. They are now being used for elevated atmospheric ozone studies.



HFIR Permanent Beryllium Reflector Replacement

One of the most significant jobs ever undertaken at the HFIR was the first replacement of the permanent beryllium reflector. In February 1975, cracks in the reflector were noted during a routine core inspection. The decision was made to replace it. Detailed planning was required to accomplish this task.

Over 200 special tools for working with highly radioactive components under water were designed, fabricated, and tested. Procedures were written and approved for each detailed operation, and a new reflector was cast, machined, and inspected by specialty outside fabricators.

In May 1975, the P&E Division began a 3-shift rotation of 7 days per week, 2 shifts per day, to remove all the experimental equipment from the beam room in preparation for removing the horizontal beam tubes. The reactor continued operation until June, when it was shut down for the complete disassembly.

Fifteen weeks later, the reflector replacement was completed; the reactor resumed operation on August 29, 1975. The actual reactor downtime was 12 weeks and 3 days. An additional 90 days were required to reinstall all the spectrometers and experimental equipment in the beam room.

HFIR Pressure Vessel Embrittlement-Extended Shutdown

The HFIR was shut down in November 1986, when some pressure vessel surveillance samples indicated that the vessel was becoming embrittled at a faster rate than original design predictions. Because the samples were not analyzed promptly upon removal from the reactor, an investigation was launched into overall management, operations, and maintenance of reactors at ORNL.

As a result of the investigations and recommendations by numerous committees, the Research Reactors Division was formed and several projects were initiated to make the reactor safe for operation. These projects included a vessel **depressurization** system, a pool-heating system (to maintain the vessel at a higher temperature during startup), and modifications to the cooling tower bypass (to maintain secondary return water temperatures). In addition to these projects, a "Sparkle" program was initiated to enhance the appearance of the facility.

All of these activities involved intensive participation by P&E Division staff members. Restart of the HFIR was given the highest priority by Energy Systems management, and P&E support level was essentially tripled with additional line supervision and support craft.

This elevated support effort was maintained until the restart projects were completed. The reactor was initially restored to 85 MW (new full power level) in May of 1990.

Machine Guarding Campaign

When the P&E Division assessed the state of its equipment in anticipation of the arrival of the 1990 Tiger Team, it became clear that there were many deficiencies relative to Occupational Safety and Health Administration (OSHA) requirements. While P&E ran a generally safe shop and operators had good safety records, many machine guards, which are safety devices designed to protect operators from injury while operating powerful and potentially dangerous machines, were not up to OSHA standards. The resulting machine guarding campaign, which drew from the design and fabrication

talents of P&E craftsmen, has resulted in an even safer working environment and praise from OSHA, DOE, and Laboratory officials alike.

Joe Whedbee was superintendent of the Fabrication Department, where a good many of P&E's shortcomings were found: "Before 1990, we lived in the spirit of OSHA, but not to the letter. We felt like our machines were adequately guarded-a lot of guarding was out of compliance, but adequate." Anticipating that "adequate" would not cut it with the Tigers, P&E conducted a self-assessment that revealed 671 machine guarding deficiencies in the Fabrication Department alone. That's when folks went to work. P&E craftsmen assessed machinery against a safety checklist, formed an action plan, and prioritized guarding needs.

"Much of our machinery is very old," Whedbee said. "Out of 671 problems, we were able to purchase 300 guards. But the average age of our machine tools is 24 years, so many are out of production and had to be fabricated in-house. It turned out to be a major effort." The program drew upon skills of machinists, millwrights, sheet metal workers, and other craftsmen. Don Wilkerson, P. R. Long, Charlie Stevens, Jerry Beeler, Ron Taylor, Steve Gardner, Larry Stewart, Mike Dyer, Terry Jackson, B. E. McNabb, R. G. Winkle, Bill Smith, and Ed Mee were among those who invested many hours in devising and installing the guards.

With their skill and familiarity with the equipment, the craftsmen turned out to be excellent safety designers. Some of the guards they came up with were downright ingenious devices that allowed operators to work without being obstructed by the devices, which is an important aspect of the project's success. "We anticipated a tremendous reluctance to use the guards on the part of employees, but because they had a part in designing and fabricating them, the people accepted them more readily," Whedbee said.

The Tigers liked what they found. P&E received one of the highly prized noteworthy accomplishments citations from the ORNL Tigers, who cited the "effective and exemplary use of teams of employees to develop, design, fabricate, and install guarding on equipment in 10 fabrication shops." An OSHA inspector said that the guarding on a metal roll, which was designed and installed by a Fabrication Department staff member, was the best he had ever seen.

Whedbee said the program's success has brought requests for guarding from all over the Laboratory. Instrumentation and Controls, Metals and Ceramics, and Quality divisions are among groups who have asked for P&E's help in correcting deficiencies, and the division has sent information on the guarding program to other national laboratories and DOE contractors around the country.

Excerpt of the Tiger Team Report

Noteworthy practice: A program was initiated by the ORNL Fabrication Department in 1989 to assess compliance with the OSHA machine safeguarding regulations (Subpart O). Initial assessments were conducted by teams of staff members throughout the department, seeking input to not only meet the OSHA regulations but to allow the machines to remain operable and efficient. The teams utilized innovative approaches to develop, design, fabricate, and install guarding that could not be purchased from the manufacturer. A computerized data base was developed and maintained that allowed daily tracking of all guarding activity in the department. The program encompassed 10 fabrication shops,

requiring over 1500 guards on 574 different pieces of equipment such as milling machines, lathes, drill presses, belt sanders, vertical and horizontal band saws, shears, rolls, and press brakes.

This practice should be implemented throughout all DOE facilities to ensure standardization of sites, thereby setting the standard for excellence.

Training

Training has always been an important activity in the P&E Division. The Division must have highly talented and well trained employees to accomplish the complex tasks required. Until recently, employee training was the responsibility of each major department. Managers provided training in accordance with their specific needs.

Recently published American National Standards Institute, Inc. (ANSI) standards, Institute of Nuclear Power Operations (INPO) guidelines, and U.S. Department of Energy (DOE) documents have drastically changed the thrust of training. Training requirements have expanded rapidly, necessitating a concentrated effort by training professionals. The Division was fortunate to hire Kerry D. Miller in July 1989 as the P&E Division technical training manager. He has tackled this monumental task by putting together a group of skilled technical training personnel. The level of training has progressed to the point that P&E Division employees now receive more than 40,000 person-hours of training per year.

The training function is well in control to the extent that most compliance and environmental, safety, and health (ES&H) training requirements are being met. This continuing training effort is a major one that includes eventual accreditation for training programs at the High Flux Isotope Reactor (HFIR) and the Radiochemical Engineering Development Center (REDC).

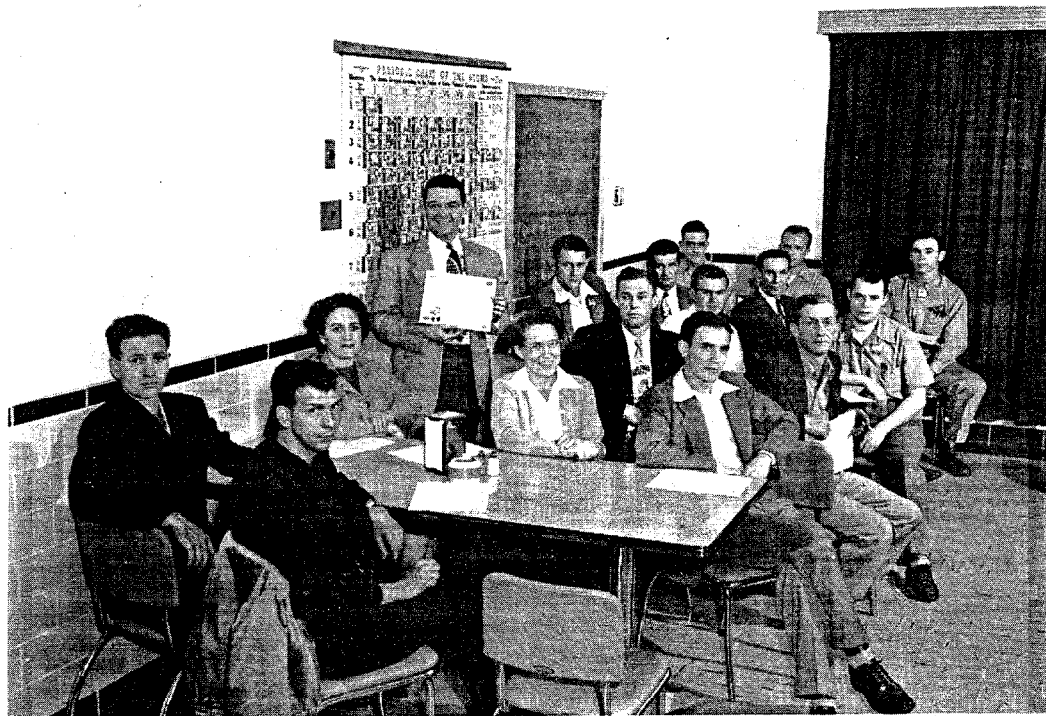
Apprenticeship Program

The apprenticeship program was begun on a national level on August 31, 1937, when Congress passed the National Apprenticeship Act. The intent was for industries to conduct training programs to develop workers into skilled journeymen. This act has proven beneficial to the employees, the companies, and the country as well as the P&E Division (or whatever its name over the years), for without the craftspeople or bargaining unit personnel, there would be no need for the division.

The Laboratory began apprentice training on Wednesday, October 13, 1948, in the classrooms assigned to the Job Training Section in Building 703-C (Building 1000). Thirty-nine employees representing three departments (Instrument, Mechanical, and Research Shops) and ten craftspeople (auto mechanic, carpenter, electrician, instrument mechanic, leadburner, machinist, millwright, painter, pipefitter, and sheet metal worker) were the first participants. At this time, Instruments was a department in the EM&C Division, a forerunner of the P&E Division. The requirements of the apprentices were 432 hours (4 hours of classroom instruction per week) in shop theory and practice, blueprint reading and shop sketching, shop mathematics and nontechnical subjects, and 5400 hours of field experience (on-the-job training); total time required was 3 years. The first instructors were Truman Freeman (blueprint reading and shop sketching) and J. Marvin Byrum (shop mathematics), with selected foremen and journeymen of the various crafts doing the shop theory and practice and nontechnical subjects.

A General Apprenticeship Committee (GAC) was organized with three officials representing the company (L. M. Reynolds, F. W. Wuest, and B. G. Catron) and three representing the Union (C. W. Toner, J. T. Beall, and H. T. Seritt). There was also a Craft Apprenticeship Committee for each craft participating. A foreman and a journeyman represented each craft. These people were the following: E. L. Douglas and A. P. Young (auto mechanics); Fred Egner and G. M. Yancey (carpenters); Roy Hartman and Jerry Truett (electricians); R. E. Toucey and A. Williams (instrument mechanics); F. J. Carberry and Paul Hornsby (leadburners); J. E. Longendorfer and E. S. Cantrell (machinists); J. W. Mayfield and Joe Swank (millwrights); G. M. Jones and B. J. McKinyen (painter); Zell Delay and Charlie Poe (pipefitters); and M. W. Chadwell and J. D. Lovin (sheet metal workers).

The following pages show a copy of the first page of the original apprenticeship standards (1948); a copy of the Certificate of Completion of Apprenticeship awarded to Paul L. Moore (carpenter); and several photographs of the apprentice enrollees, apprentices engaged in classroom studies, and—graduation day!



▲ First apprentice graduating class of 1951 -Otto Manuel, C. H. Tucker, Jr., Ada Carter, Logan Emlet (Executive Director of ORNL), Catherine L. Yochem, Gerald Hamby, Austin W. Duncan, Noffard Rogers, W. H. Goldston, Charles R. Wallace, Jesse Miniard, William D. Davis, Allen A. Weems, James H. Morgan, James H. Knox, and Haskell Swearengin.

Gerald Hanby
A P P R E N T I C E S H I P S T A N D A R D S

of the

OAK RIDGE NATIONAL LABORATORY

Operated By

Carbide and Carbon Chemicals Corporation

For The

Atomic Energy Commission

Formulated By The

LABORATORY GENERAL APPRENTICESHIP COMMITTEE

Representing The

Carbide and Carbon Chemicals Corporation
Oak Ridge, Tennessee

Atomic Trades and Labor Council
American Federation of Labor

GENERAL COMMITTEE MEMBERSHIP

Representing the Company:

Frank W. Wuest

L. M. Reynolds

B. G. Catron

(Chairman)

Representing the Union:

Clarence w. Toney

Henry T. Seritt J.A. Ager

John T. Beall O. C. Cole

August 30, 1948

These Standards were accepted by Company
and Union officials on August 31, 1948

First page of the original Apprenticeship Standards of August 1948.



Certificate of Registration

Apprenticeship Standards

This certifies that the program of apprenticeship named below has been registered as part of the National Apprenticeship Program in accordance with the standards recommended by the

Federal Committee on Apprenticeship

OAK RIDGE NATIONAL LABORATORY (CARBIDE AND CARBON CHEMICALS CORPORATION)
JOINT APPRENTICESHIP COMMITTEE (ATOMIC TRADES & LABOR COUNCIL - AFL)

Name for all apprenticeable trades

City Oak Ridge

State Tennessee

Date December 9, 1948

Registry No. 60510

W^m G. Patterson

Director, Apprentice-Training Service

U. S. Department of Labor

U. S. GOVERNMENT PRINTING OFFICE 16-67287-1

Certificate of Registration

Certificate of Completion of Apprenticeship

United States Department of Labor
Bureau of Apprenticeship and Training

This is to certify that

PAUL L. MOORE

has completed an apprenticeship in the trade of

CARPENTER

under sponsorship of

OAK RIDGE NATIONAL LABORATORY

in accordance with the standards recommended by the

Federal Committee on Apprenticeship

Henry R. ...
Laboratory Director
...
Director, Plant & Equipment Division
Robert ...
Atomic T. B. L. Council - A. F. of L.
...
Chairman, General Apprenticeship Committee
Date Completed SEPTEMBER 23, 1950

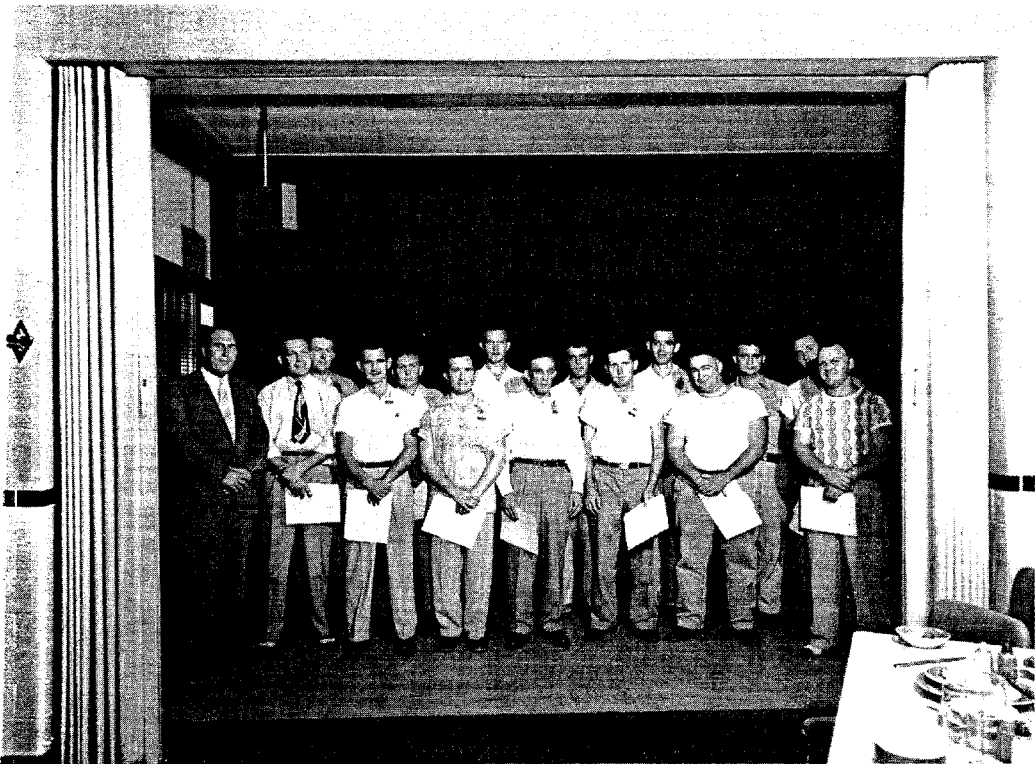


Ray Marshall
Secretary of Labor
Ernest H. Moon
Assistant Secretary for
Employment and Training
Ray McCarver
Bureau Administrator

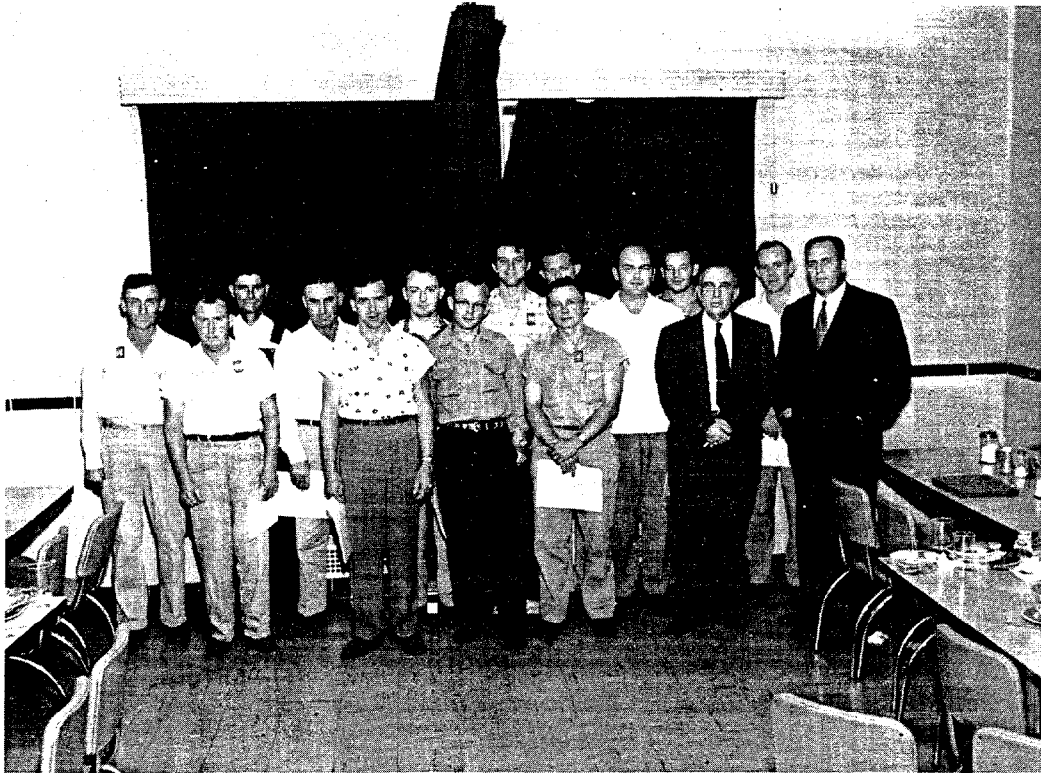
Certificate of completion of apprenticeship.



▲ Second apprentice graduating class of 1952—Left to right, (f) denotes front row: R. B. Splittgerber, Arthur Jones, J. A. Cain (f), G. A. Hamilton, H. T. Enix, J. L. Sellers (f), R. H. Woodby, T. L. Clabough, J. D. Blanton (f), G. E. Tipton (f), J. E. Day, H. J. Jarvis, Glen Underwood (f), and P. E. Swatzell.



◀ Third apprentice graduating class of 1953—
Front row: C. E. Larson (Laboratory director), J. A. Burkhalter, D. E. Robinson, S. W. McAmis, D. A. Oliver, T. E. Rush, W. S. Sums, and C. E. Coile. Back row: W. C. Fox, J. W. Brashier, J. A. Blair, J. N. Smith, E. A. Davis, W. A. Bird, and W. S. Allison,



◀ Fourth apprentice graduating class of 1955—F. W. Wuest (assistant superintendent, E&M Division), Elmer R. Woodby, Jack P. Cagle, Cass D. Lowe, Lloyd E. Stinnett, Vaughn L. Huskey, David L. Ramsey, Elmer L. Glandon, Alvin J. Wyrick, George P. Hinckey, Grover G. Stout, Herbert G. Lingenfelter, and Clayton D. McNew.

Fifth apprentice graduating class of 1956—Front row, left to right: C. E. Wright, A. F. Rupp (superintendent of Plant Services), A. M. Weinberg (Laboratory director), F. W. Wuest (assistant superintendent of E&M Division), D. W. Cardwell (superintendent of E&M Division), J. A. Newman, and R. N. Everett. Second row: J. A. Keathley, J. R. Sutton, E. D. Bridges, and C. B. Stokes, Third row: G. A. Lockett, H. J. Pemberton, D. K. Poland, C. R. Wright, W. D. Todd, G. J. N. Shanks, and W. A. Manuel.

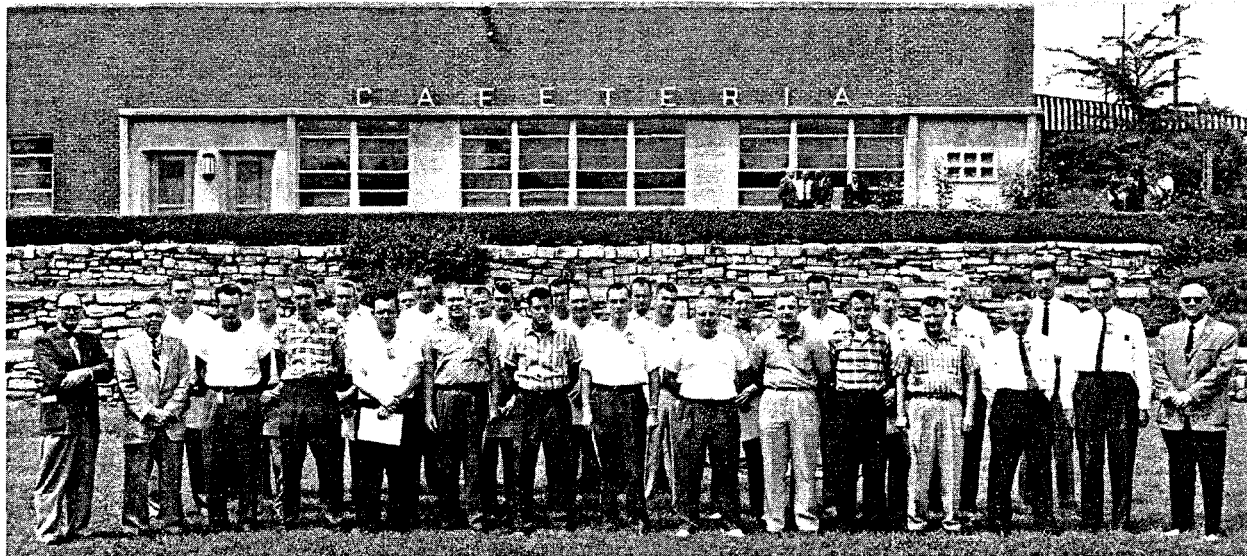




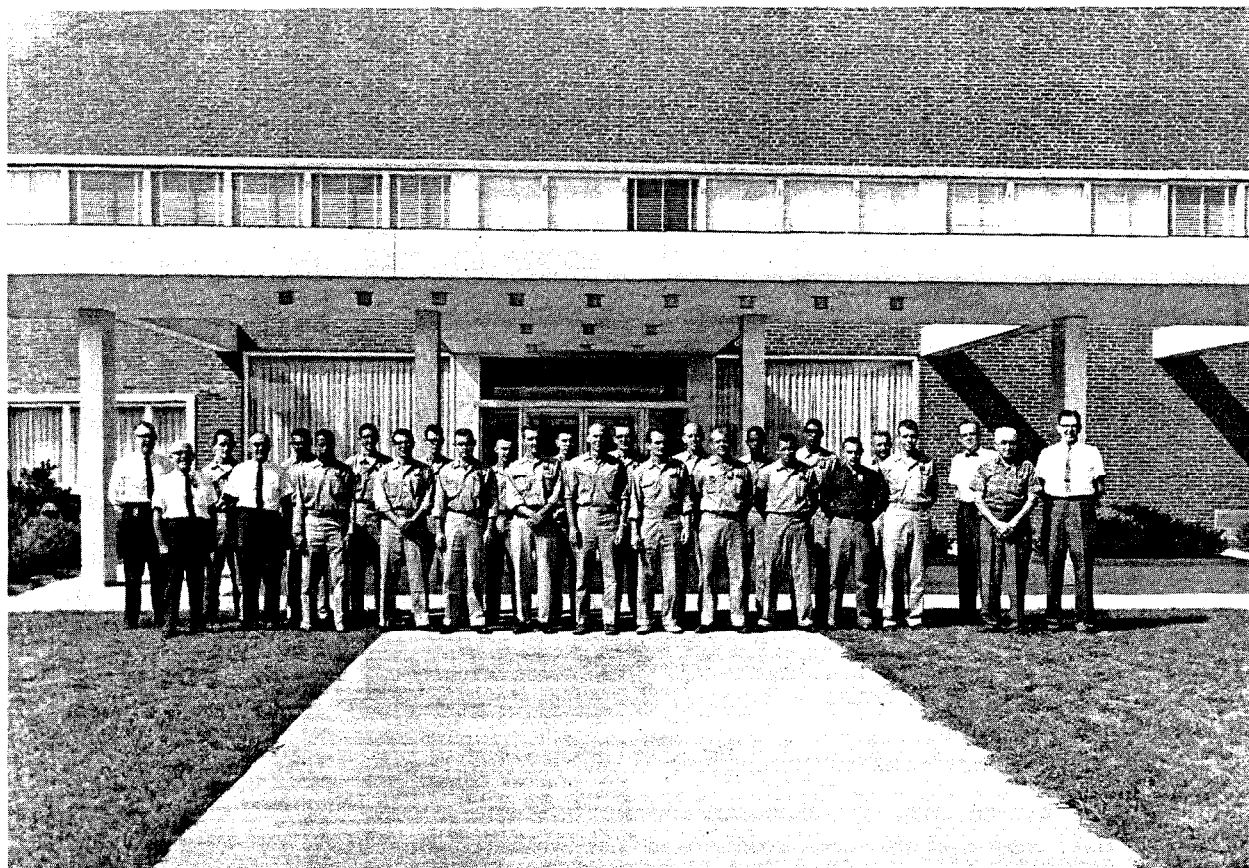
▲ **Sixth apprentice graduating class of 1957**—Front row: A. M. Weinberg (Laboratory director), D. W. Cardwell (superintendent of E&M Division), Byon Lamb (millwright), Henry Tuck and Gordon Jones (electricians), Marion Ailshie (pipefitter), Bert Denning (instrument mechanic), William Fair (electrician), Kenneth Lyle (machinist), Harold Wright (lead burner), A. F. Rupp (superintendent of Laboratory Services), F. W. Wuest (assistant superintendent of E&M Division). Back row: James Yount (pipefitter), Charles O. Balch and Robert Seals (millwrights), Walter Williams (electrician), James Hutson (instrument mechanic), Edgar J. Viatoe (electrician), and Howard Frazier and Charles McAmis (instrument mechanics).

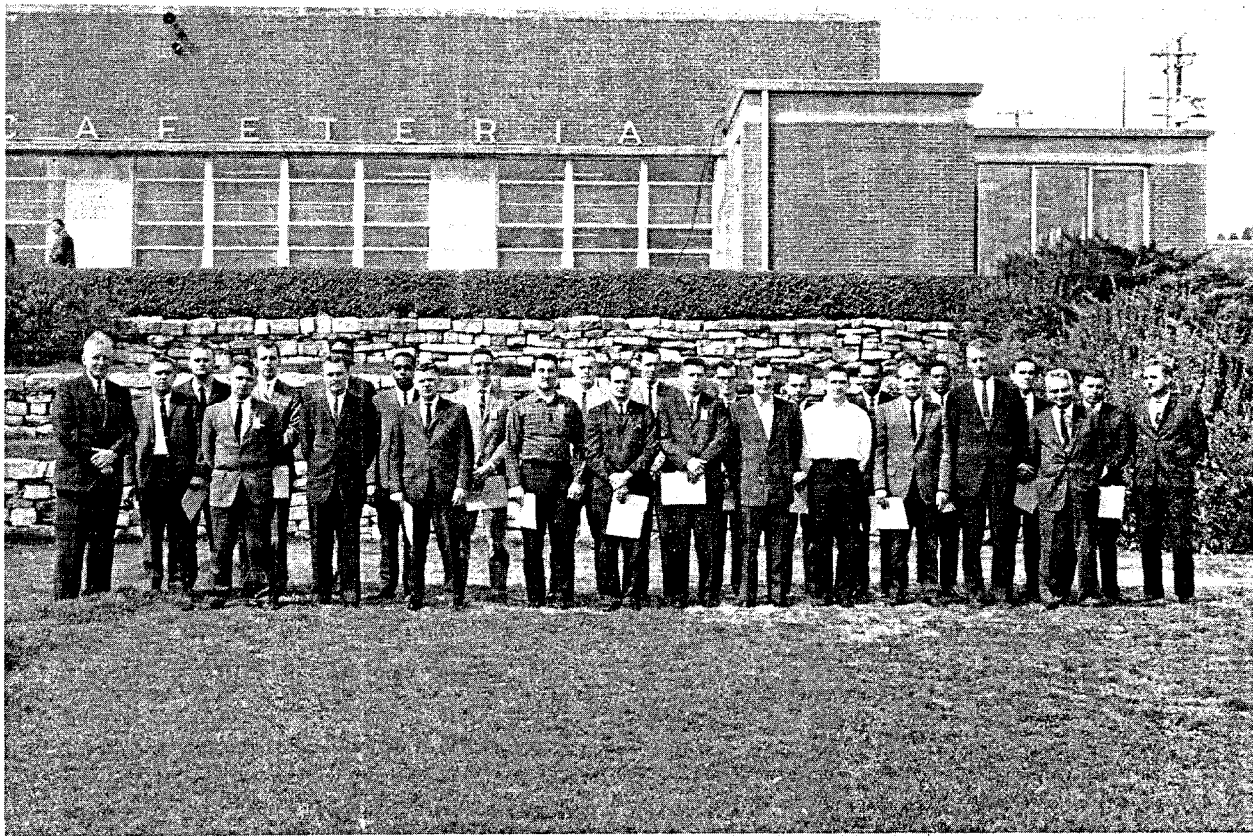
Seventh apprentice graduating class of 1959—L. H. Barker (Apprentice school), H. E. Seagren, (superintendent, E&M Division), F. W. Wuest (assistant superintendent, E&M Division), Ralph H. Rose, Rufus W. White, Lenley A. Brown, Reginald H. Miles, Dale Daniels, D. K. Mee, Carl McNutt, Robert Harris, Robert H. Leonard, Vaughn Justice, William Wolfe, Billy D. Martin, Billy Scarborough, Frank Hensley, Art Rupp (superintendent Laboratory Services), Alvin M. Weinberg (Laboratory director), and M. E. Ramsey (assistant Laboratory director). ▼





A Eighth apprentice graduating class of 1961—Left to right: A. F. Rupp (superintendent, Laboratory Services); W. H. Jordan (assistant director, ORNL); R. A. Francis, Jr. (instrument mechanic); J. B. Ogle (machinist); C. E. Kirkwood and R. L. Stansbury, Jr. (instrument mechanics); W. M. Skeens (sheet metal worker); E. T. Henson, Jr. (instrument mechanic); L. W. Wright (machinist); B. A. Swaggerty (leadburner); B. E. Freeman (electrician); T. L. Keith, J. R. Hensley, J. W. Jones, Joel Townsend, and W. F. Bunch (machinists); E. C. Bradley (electrician); L. A. Lee and J. M. Shoopman (machinists); H. E. Gideon, E. L. Breiner, T. A. Lewis, G. L. Laxton, Roger Ward, and J. H. Brown (instrument mechanics); L. C. Jenkins and C. W. Stamey (machinists); H. E. Seagren (superintendent, E&M Division); Alvin M. Weinberg (Laboratory director); C. J. Borkowski (director, I&C Division); J. A. Swartout (deputy director, ORNL); and L. H. Barker (superintendent, Personnel Services).



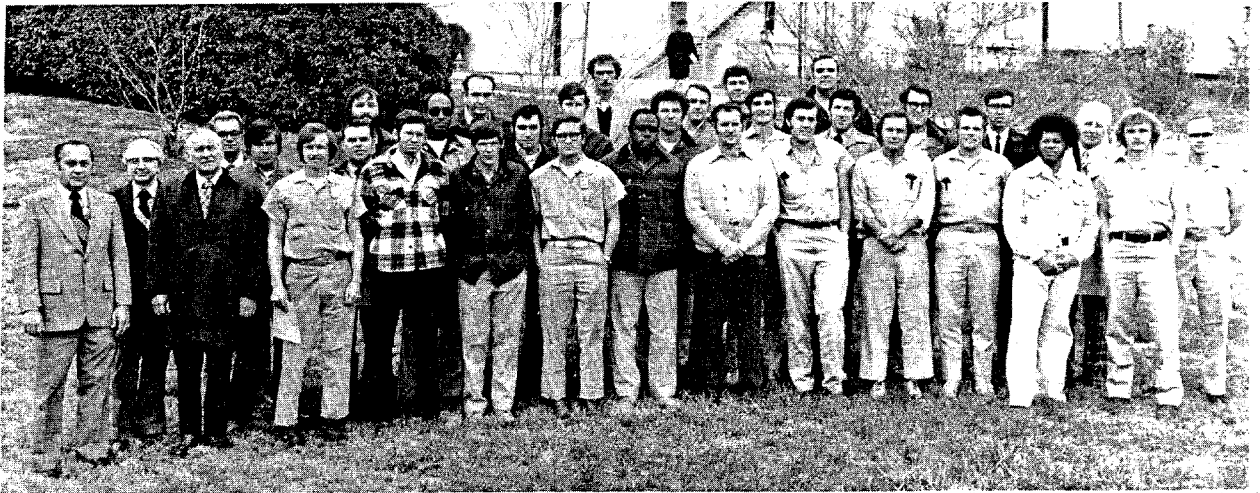


▲ **Tenth apprentice graduating class of 1966**—(Left to right): H. E. Seagren (superintendent, P&E Division; Bob Evans, B. H. Grubb, Earl Chapman, L. D. Love, B. J. Miller, J. H. Benn, J. N. Fisher, J. L. Neal, Jr., and M. E. Zeigler; R. J. Ellison, B. J. McMurray, C. Terry Stansberry, Richard A. Mathis, Dan Trent, Lester Webster, Robert A. Maples, Max Brewer, and R. E. Pollard (I&C Division); C. E. Blue, K. R. Wheeler, P. R. Long, C. J. Borkowski (director, I&C Division); Bobby Meadows; A. M. Weinberg (Laboratory director); Gordon L. Guthrie and R. E. Thomas. B. E. VanHorn (I&C) not in photo. (P&E apprentices except as noted.)

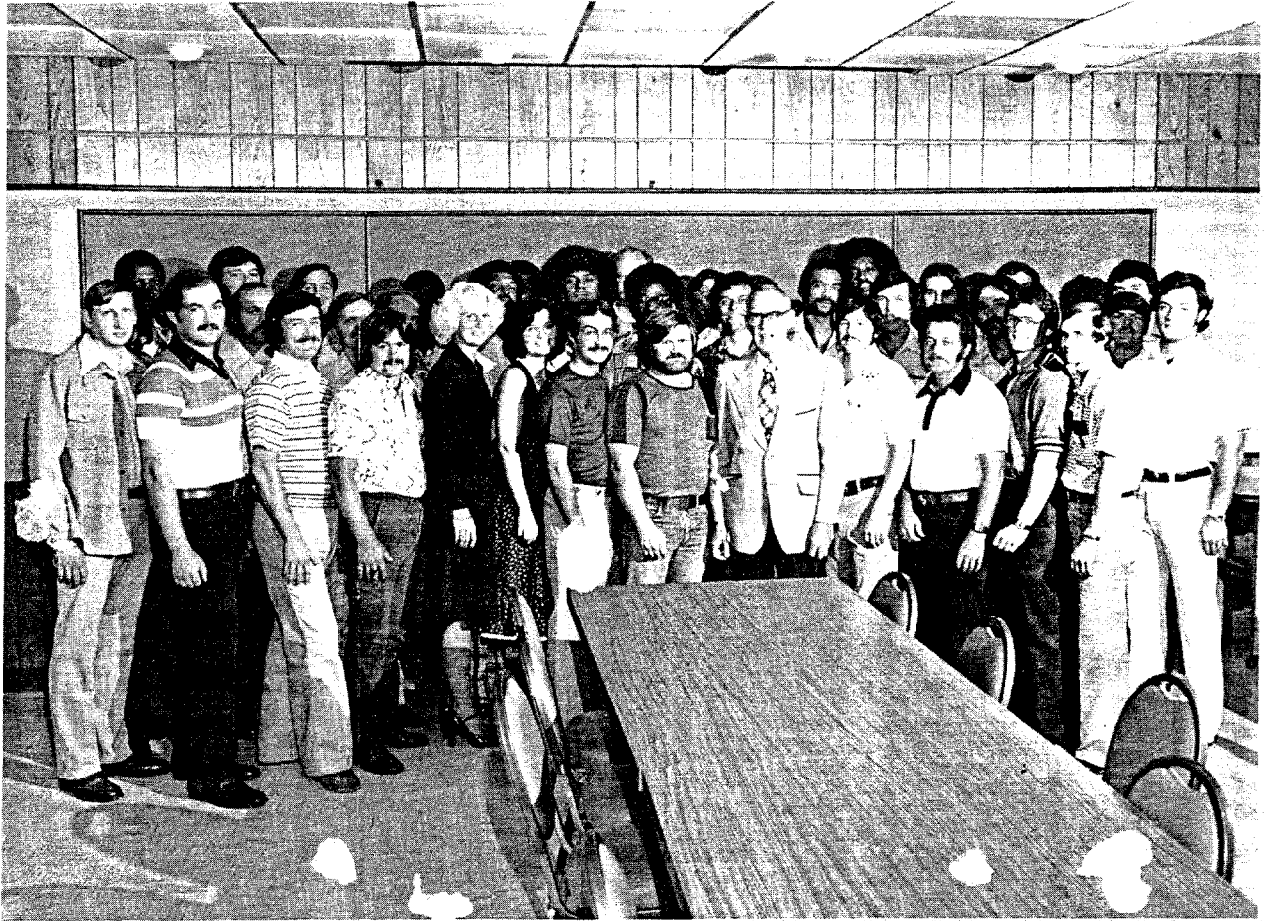
◆ **Beginning apprentice class of 1964**—T. H. Freeman (Personnel, apprentice training supervisor); E. W. Parrish (Engineering and Mechanical, General Apprenticeship Committee (GAC) Company representative); B. D. Meadows (machinist); N. L. Beeler (Engineering and Mechanical GAC Union representative); C. E. Blue (sheet metal worker); P. R. Long (machinist); M. E. Zeigler (electrician); A. M. Jeffers (machinist); L. S. Webster and B. J. Miller (sheet metal workers); Earl Chapman (millwright); R. J. Ellison (instrument technician); D. A. Trent (electrician); B. E. Van Horn (instrument technician); W. R. Sanford, Jr. (electrician); C. T. Stansberry (instrument technician); F. C. Sims (Instrumentation and Controls GAC Union representative); K. P. Wheeler (millwright); J. N. Fisher (electrician); G. L. Guthrie (machinist); J. H. Benn (millwright); M. B. Brewer (machinist); R. E. Thomas (sheet metal worker); L. D. Love (machinist); C. S. Harrill (Instrumentation and Controls GAC Company representative); N. C. Oyler (Engineering and Mechanical GAC Union representative); and B. G. Catron (Personnel Division, GAC chairman). Instrument technicians are members of I&C Division; all others are E&M Division.



▲ Eleventh apprentice graduating class of 1967—Left to right: Ed Hines, Dale Knox, C. R. Kirkpatrick Ralph Moody, Henry Hudgens, Jackie Moore, Paul Galyon, Kellar Wallace, Theotis Robinson, Mike Sommers, W. H. Carter, Wesley Benton, J. F. Murphy, James Duncan, George Luttrell, James McCall, Edgar Blair, Gordon Byrd, Max Hendrix, Norman Beeler, Alvin M. Weinberg, L. H. Barker, and H. E. Seagren.

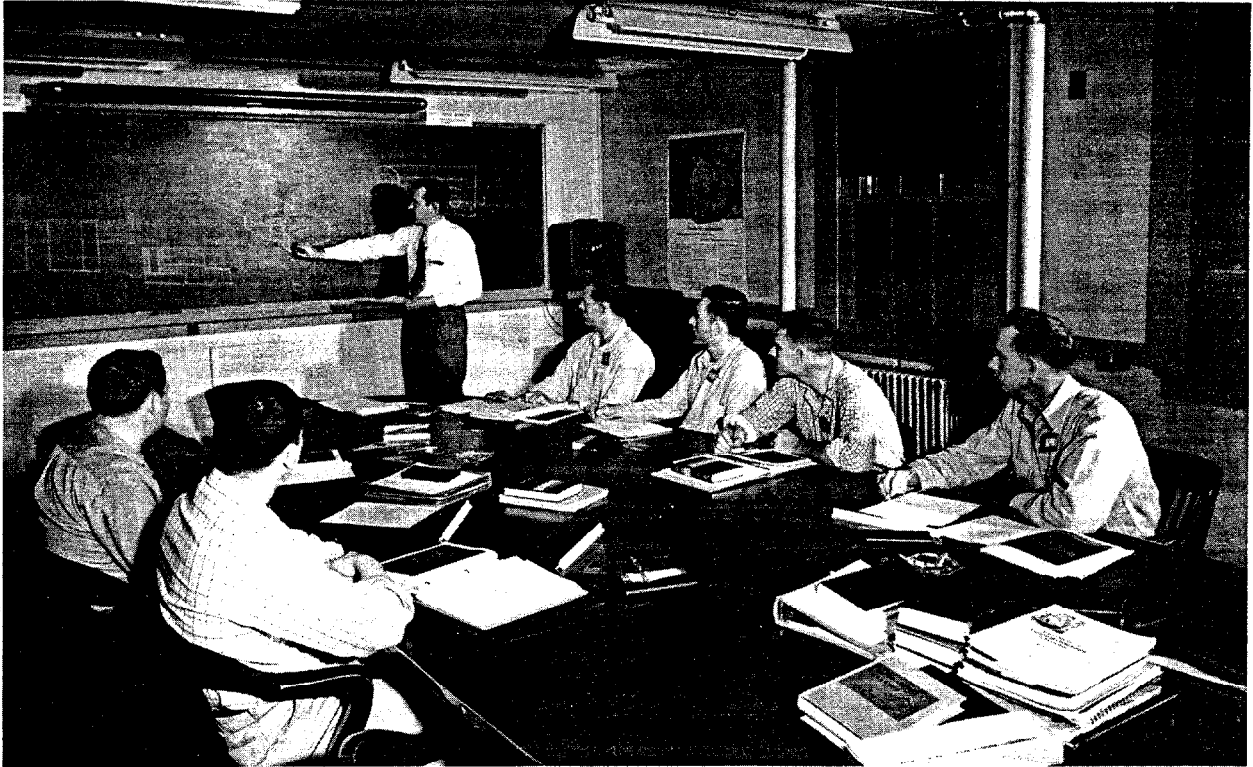


▲ Apprentice graduating class of 1975—Left to right, (f) denotes front row: Bob Keil (f), Bob Farnham, M. E. Ramsey (f), Bill Blevins, Carl Johnson, Robert Mink (f), Carl Overton, Allen Miller, Dan Glandon (f), William Golden, Gary Petree, Ova Duck (f), Tom Kegley, Dan Underwood (f), Jim Mullins, Jim Violet, Alvincent Felder (f), Doug Collins, Roger Herron, David Weisgerber (f), Harold Wright, Bruce Rader, John Parrish (f), Ed Mee, Curtis McGinnis, George McGill (f), Bill Morton, Bill Collins (f), Phil Herrell, Otis Latham (f), Harry Seagren, Wayne Brooks (f), and Clarence Murrin.



▲ **Apprentice graduating class of 1978**—Left to right, (9 denotes front row: F. W. Ballard (9, Wayne Johnson, David Cowser (9, David Bunch, Mike Lyons, Jeff Hill (9, Charles Lamb, Hershell Brooks, Steve Thomas (9, James B. Gheen, Jr., Bobby Kincaid, Vicki Harmon (9, Ron D. Hull, John Clark, Kathy Brown (9, Rolondo Long, John Pitts (9, Dennis Connley, Hurley Satterfield, Mike Jones (9, Larry Stewart, Wayne Castleberry, Truman Freeman (9, Charles Hackler, John Osborne (9, H. O. (Okie) Johnson, Allen White, Roger White (9, Gary Cable, Hutson Henderson, unidentified, Steve Dawn (9, William Howard 'Coon' Rose (9, Paul Rogers, Ronnie Harmon, and Steve Edgemon (f).

Apprentice class room and blueprint reading class (1955)—Clockwise beginning with nearest person: D. C. Richardson, M. G. Ailshie, B. M. Lamb (instructor), J. A. Yount, R. H. Seals, C. Q. Balch, and D. K. Poland.



▲ **Apprentice class room (1956)**—R. H. Miles, Dale Daniels, R. H. Leonard, R. W. White, D. W. Cardwell (superintendent, E&M Division), R. H. Rose, R. W. Harris, J. M. Shoopman, and J. R. Hensley.

Safety Programs of P&E Division

The P&E Division emphasizes the importance of safety practices. “No injury” pins are annually awarded to those who have not suffered an injury during their employment.

Others who have been involved in accidents, either on- or off-the-job, are recognized for avoiding or lessening the severity of injury or even death through the use of vehicle seat belts, steel-capped safety shoes, safety glasses, or protective helmets. These people are given membership in the Golden Shoe Club, the Wise Owl Club, the Gold Buckle Club, or the Turtle (Hard Knocks) Club.

Golden Shoe Club

The Golden Shoe Club is a national organization sponsored by the HyTest Division of the International Shoe Company in an effort to encourage workers to wear steel-capped safety shoes. Its members are employees who “. . . through close adherence to safe practices and by the precaution of wearing safety shoes were saved from serious injury . . .” P&E members of the club since it originated are:

1	1962	A. D. White	Boilermaker
2	1963	B. E. McNabb	Welder
3	1963	L. B. Casteel	Millwright
4	1963	C. R. McNutt	Millwright
5	1964	M. L. Hodges	Pipefitter
6	1964	R. D. Lawson	Electroplater
7	1964	R. V. Eldridge	Auto mechanic
9	1965	W. O. Williams	Welder
10	1966	E. G. Deadrick	Machinist
11	1966	D. H. Lawson	Machinist helper
12	1967	H. R. Hubbs	Pipefitter
13	1968	A. E. Kerr	Laborer
14	1968	W. Davidson	Materials handler
15	1968	H. S. Roach	Machinist
16	1968	G. E. Pollard	Laborer
17	1969	A. B. Thornton	Pipefitter
18	1969	C. D. McNutt	Millwright
19	1970	J. Bolinsky	Clerk
20	1970	D. C. Richesin	Pipefitter
21	1971	C. V. Kunkel	Carpenter
22	1971	L. R. Bryson	Electrician
23	1972	w. L. cox	Rigger
24	1972	T. E. Rush	Lead burner
25	1973	M. B. Brister	Rigger
26	1974	W. L. Belk	Rigger
27	1975	R. G. Johnson	Laborer
28	1975	B. J. Hannifin	Pipefitter
29	1976	L. Gordon, Jr.	Painter
30	1978	R. E. Hurst	Refrig mechanic
31	1977	J. L. Martin	Millwright
32	1978	F. H. Wright	Pipefitter
33	1978	M. E. Dobson	Pipefitter
34	1978	L. E. Hill	Laborer

35	1979	Dock Smith	Millwright helper
36	1980	B. A. Upton	Laborer
37	1981	E. D. Hines, Jr.	Boilermaker
38	1983	J. E. Brodie	Laborer
39	1984	C. E. Stanley	Laborer
40	1984	D. E. Cox	Millwright
41	1985	J. W. Michaels	Pipefitter
42	1986	C. R. Collins	Pipefitter
43	1987	J. E. Ray	Laborer
44	1987	A. C. Bowers	Rigger
45	1988	J. E. Lambert	Electroplater
46	1989	J. J. LeComte	Millwright
47	1989	K. R. Foust	Millwright
48	1990	W. E. Greene	Laborer



◀ **Golden Shoe recipient.**
Fred H. Wright with
R. M. Farnham (left) and
G. W. Oliphant (1978).

**Golden Shoe Club
Membership.** H. E. Seagren
presents membership plaque
to J. L. Martin (1978). ▶



Wise Owl Club

The Wise Owl Club is comprised of Laboratory employees who have either avoided or reduced injury to their eyes in an on-the-job incident by wearing safety glasses. The club is sponsored by the National Society for the Prevention of Blindness. Members of the P&E club are listed.

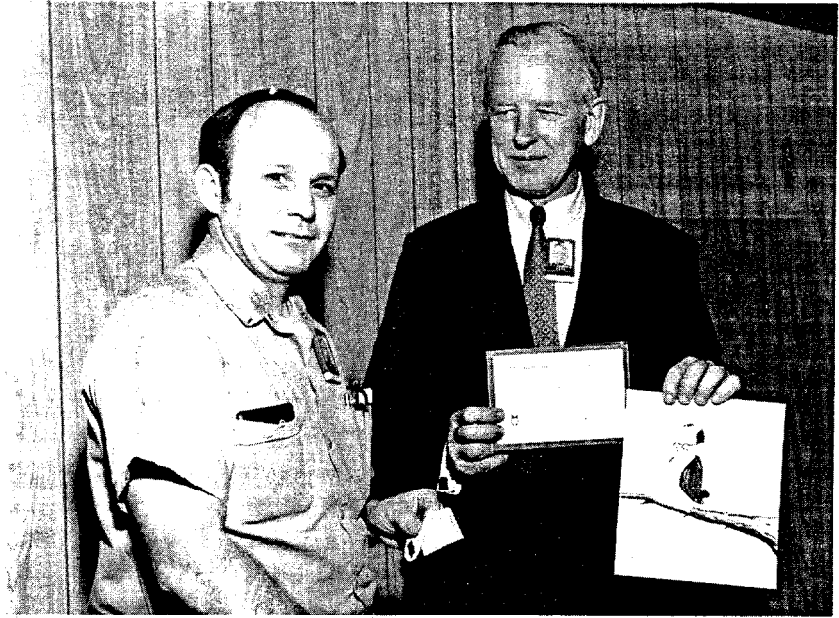
1	1952	J. L. Tuck, Jr.	Auto mechanic
2	1952	G. C. Karr	Lead burner
3	1952	J. W. South	Lead burner
4	1953	F. S. Kent	Carpenter
5	1953	G. W. Leever, Sr.	Electrician
6	1953	J. M. Jefferies	Laborer
7	1955	N. M. Clark	Machinist
8	1956	R. C. Owsley	Millwright
9	1957	A. B. Slusher	Pipefitter
10	1962	L. A. Lee	Machinist
11	1962	T. J. Bentley	Electrician
12	1965	H. Ray Hubbs	Pipefitter
13	1965	J. P. Cagle	Carpenter
14	1965	H. H. Marshall	Sheet metal worker
15	1965	W. C. Garrison	Lead burner
16	1965	B. E. Freeman	Electrician
17	1968	B. D. Martin	Pipefitter
18	1968	J. A. Womac	Electrician
19	1968	W. H. Davy, Jr.	Machinist
20	1969	F. E. Jones	Pipefitter
21	1970	L. D. Quinton	Pipefitter



◀ Receiving **Wise Owl** plaque. W. H. Hawkins (1971).

22	1970	V. L. Reynolds	Laborer
23	1970	D. J. Nelson	Machinist
24	1970	W. J. Hatcher	Machinist
25	1971	W. C. Hawkins	Rigger
26	1971	J. F. Thompson	Instrument maker
27	1971	M. E. Zeigler	Electrician
28	1973	G. H. Johnstone	Supervisor (honorary member-off-job accident)
29	1974	E. J. Shepherd	Carpenter (honorary member-off-job accident)
30	1975	H. Ray Hubbs	Pipefitter
31	1975	J. W. Fox	Pipefitter
32	1977	T. C. Wright	Electrician
33	1977	C. H. Overton	Machinist
34	1978	M. E. Mellon	Laborer
35	1978	J. G. Gurganious	Pipefitter
36	1979	H. F. Hall	Laborer
37	1979	G. R. Stepp	Laborer
38	1979	W. R. Morton	Pipefitter
39	1980	K. W. Donham	Sheetmetal
40	1981	C. R. Wright	Lead burner
41	1981	D. R. Leamon	Machinist
42	1983	J. W. Cornett	Electrician
43	1984	M. E. Fraker	Electrician
44	1984	R. E. Barnes	Machinist
45	1985	E. Thornton	Machinist
46	1985	D. L. Tilley	Millwright
47	1985	L. F. Futrell, Jr.	Millwright
48	1985	G. E. Ferguson	Oiler/lub specialist
49	1986	J. W. Settle	Refrigeration Mechanic
50	1986	R. E. Shorter	Carpenter
51	1986	O. E. Latham	Supervisor
52	1986	C. E. Foust	Auto mechanic
53	1987	R. L. Patterson	Auto oiler
54	1988	H. Kuziak, Jr.	Sheetmetal
55	1988	J. T. McCall	Machinist
56	1989	L. R. Loop	Auto oiler
57	1989	R. C. Greter	Pipefitter
58	1990	J. J. LeComte	Millwright
59	1990	D. J. French	Lineman (electrician)
60	1991	H. L. Jones	Lineman (electrician)
61		H. G. Hackler	

F. E. Jones is presented his Wise Owl plaque by H. E. Seagren (1969)



◀ Honorary Wise Owl. George H. Johnstone receiving plaque form H. E. Seagren. George's eyesight was saved by his safety glasses while doing work off the job (1973).

Gold Buckle Club

The Gold Buckle Club "... living proof that seat belts save lives ..." was established in 1984 to promote the use of seat belts through recognition of employees who, on- or off-the-job, have been either saved from injury, experienced reduced injury severity, or saved from loss of life through the use of seat belts. P&E Division members are listed.

- | | | | |
|---|------|---------------|--------------------|
| 1 | 1985 | R. R. Arp | Supervisor |
| 2 | 1985 | H. H. Tuck | Supervisor |
| 3 | 1985 | I. R. Curtis | Laborer |
| 4 | 1985 | R. D. Lawson | Plating technician |
| 5 | 1986 | D. R. Roberts | Truck driver |
| 6 | 1986 | C. E. Mee | Pipefitter |

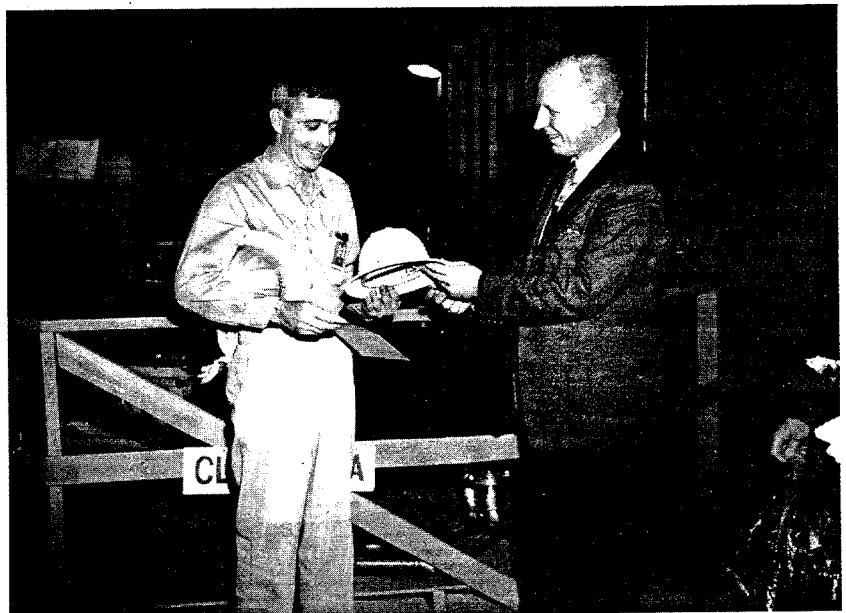
7	1986	H. C. Booker	Laborer
8	1986	J. L. Hammontree	Manager
9	1986	D. N. White	Painter
10	1986	R. E. Braden	Truck driver
11	1986	S. A. Black	Secretary
12	1987	M. L. Jones	Sheet metal worker
13	1987	E. L. Gibson	Laborer
14	1987	C. D. Thomas	Janitor
15	1987	J. G. Sewell	Planner/estimator
16	1987	T. Steele	Secretary
17	1987	R. M. Sizemore	Substation operator
18	1987	G. A. Powers	Electrician
19	1987	B. W. Shelton	Janitor
20	1987	V. T. Carmony, Jr.	Supervisor
21	1987	J. T. McCall	Machinist
22	1987	B. E. Edgemon	Truck driver
23	1987	C. Dykes	Rigger
24	1988	H. C. Leffew	Auto mechanic
25	1990	H. R. Clower	Truck driver
26	1990	T. G. Chadwick	Welder
27	1990	C. G. Palko	Engineer
28	1990	Harold Kuziak	Sheet metal worker
29	1990	W. A. Rose	Machinist
30	1989	T. G. Sanford	Supervisor
31	1990	C. S. Baker	Clerical assistant
32	1991	B. G. Lankford	Carpenter
33	1991	W. R. Vittatoe	Equipment Operator
34	1991	Kathy Brown	Electrician

Receiving Turtle Club
certificate and a new hard hat.
C. R. Sampsell from
H. E. Seagren (1964). ▼

Turtle Club

Turtle Club members are those who have either avoided or lessened the severity of injury by wearing helmets. Their number is small, but nonetheless significant, for they have protected themselves from injury or loss of life through use of personal protective apparel. They are :

1	1961	W.L. Tuck
2	1964	B. E. McNabb
3	1964	C. A. Sampsell



Personalities

W. A. (Bill) Walker (from W. A. Walker, retired)

While in the P&E Division, Bill received the IR-100 Award in 1980 for his participation in developing the Portable Fluorescence Spotter. In addition, he is credited with receiving seven patents.

Bill Walker was hired in 1958 as a machinist's helper. He completed the machinist apprentice program, became a journeyman machinist, and later, an instrument maker (a machinist having special talents). Next he became shop draftsman, then designer, and, finally, he did computer-aided design (Designer II) and was responsible for shop design and subcontracting. He retired on October 31, 1990.

James Flynn (from J. D. Flynn)

James (or J. D., as he was known to everyone) was hired to work at the Y-12 Plant in May 1948, and a month later he moved to X-10 where he worked for the Physics Division for 12 years. His first assignment was at the "core hole" at the "X-Pile" (Graphite Reactor). He worked on shielding projects for 4 years; at the Swimming Pool (Bulk Shielding Facility) the next 4 years, then at HTR (Homogeneous Test Reactor) for 4 more years. In Physics Division, J. D. worked with noted physicists Art Snell, Charlie Winters, E. P. Blizard, and Fred Maienschien. Jim Cox and Ed Witkowski (Operations Division) hired him in January 1960 as head of Waste Operations. J. D. didn't like his new job. About this time, Program Engineering (E&M) Division was being formed, so he transferred one more time (April 1960) and remained there until he retired in 1983.

Perry Hembree (from P. W. Hembree)

Perry was hired by Bill Weiner (Monsanto) as a job engineer in the Research Shop in January 1947. About this time Biology Division was formed, and he went to the Y-12 Plant as an assistant general superintendent. He returned to X-10 as administrative assistant to Dave Cardwell (Frank Wuest was Cardwell's assistant). Later, Perry moved to the Mechanical Department.

Engineering was located in Building 1000, moved to 3022 (Program Engineering was formed), then back to 1000 (P&E Division was formed and separated from Engineering Division), and P&E moved to Building 2518. Shortly thereafter, field engineers became residents with their customer divisions.

After Bill Weiner came Jim Stewart, Doug Lavers, then Dave Cardwell, followed by Harry Seagren, and later by George Oliphant. Sometime in those days, the head of Engineering was Carl Marsh with Gibson Morris reporting to him. Paul Kofmehl is one name he mentioned. Another was Logan Emler, assistant to Alvin Weinberg, the Laboratory director.

Bill (William Francis) Buker (from Ada F. Mises)

Bill Buker was program (later field) engineering supervisor. He used an unheard of method for selecting the engineers that he wanted to work for him. Instead of choosing those who had been outstanding scholars, he looked at their achievements and work records in their early years. Did they

have after-school jobs? Maybe a paper route? Did they take an interest in Boy Scouts? To him, grades were not necessarily an indication of how successful the person would be as an engineer in his organization.

Fred Heddleson, Dogs and Cats Department (from F. A. Heddleson)

Fred Heddleson was assigned to the Engineering Section of E&M Division from 1952 until 1960; he became supervisor of the General Research Group when Program Engineering was formed. In 1952, Dave **Cardwell** was director, Gibson Morris was supervisor of Engineering, and Earl Longendorfer was supervisor of the Mechanical Group. Eddie Tirpak was head of the Mechanical and Architectural groups and Frank Ring was head of Machine Design.

In the design section of the division, Fred first worked in piping design, then in air handling design. About 1954, Dave **Cardwell** felt that the engineers were spending too much time on small jobs, so he formed a new department devoted to small jobs. Fred became head of the “Quick-and-Dirty” department, also called the “Dogs and Cats” department. (Ed Reed replaced him in that group after Fred moved to program engineering.) Fred had a problem—he was head of a design group with no one to supervise. He did the engineering and had to scout the other design groups to find an idle draftsman to do his drawing.

In those times, E&M was a “party” organization, and Fred recalls a dinner-dance that he attended. It was his misfortune to have been seated near the line to the buffet table. *Everyone* had to pass that way, and because Fred had worked with so many different draftsmen and he knew each of them, he felt an obligation to introduce people. He spent almost the entire dinner time making introductions instead of eating.

Truman at the races (from Carl Mason)

Truman J., a craft supervisor, liked to attend stock car races while on vacation in Florida. Returning to the daily grind, Truman, having unrolled blueprints on his desk, was explaining a job to his electricians. The electricians had maneuvered Truman so that the office door was at his back. They gently guided the conversation from the task at hand to the races, and soon they were in the fourth turn at Daytona Racetrack. Va-roommm!—as round and round they go. Suddenly, Truman became aware that someone was standing behind him; he turned to find Ken Jamison, the department superintendent. Grabbing the blueprints, he flung them at the men: “Put it in like the drawings show, boys!”

Sexton and the time clock (from M. L. Snow)

The Tower Shielding Facility (TSF) is some distance from the main Laboratory site—at the very boundary of the Oak Ridge Reservation before crossing the river into Loudon County. Being so far removed from the Laboratory, the facility was somewhat self-sufficient, having in-house such things as the “clock alley” and change room. M. L. Snow recalled an electrician named Sexton who worked at the TSF. On this particular day, Sexton looked at his watch and became aware that he was working past the **normal** time to change into his street clothes; moreover, his **carpool** would be waiting for him. Quickly, he raced to the change room to shower and change clothes. Sitting



A Gospel singers. First row, kneeling: A. G. Spurgeon (guitar), S. H. McReynolds, C. S. Harvey, O. R. Tidwell, O. M. Kinnamen, John Taylor, L. C. Lovette, and C. O. McCloud; second row: K. A. Cooper, T. A. Jacques, Dick Williams, J. L. Kidwell, Virgil Reynolds, Harry McNight, W. M. Fair, William Prewitt, and L. Sharp. Back row: George Cox, Robert Lawson, Vaughn Huskey, J. T. Craig, B. F. Rash, and G. B. Gamble. News photo 20518 and article printed in *THE NEWS*, Friday, June 8, 1951.

John McGraw, who worked for division office staff, shown at retirement time. ▶



down to put on his shoes, he noticed that he was alone. He checked his watch again and discovered that he had read the time incorrectly—he had changed clothes an hour early. What followed is said to be the fastest Sexton had ever changed into his khakis.

Hicks and the leaking pipe (from C. H. Abner)

The time was 1960—the place was Building 3504—the job was installing cooling water piping and electrical services required for operating an X-ray diffraction instrument. Hicks was assigned to do the pipe work for the cooling water. Without any help (unheard of during these times of OSHA and Tiger Teams), Hicks climbed the ladder and closed the valve on the water line. Then, taking hacksaw in hand, he cut the copper tubing, only to discover that the valve he had closed wasn't really closed—something had interfered with the seat and it was leaking. Help wouldn't be available until after normal working hours (overtime!), so Hicks spent the rest of the day catching water in a bucket and pouring it into a sink.

The termiting process (from R. J. DeBakker)

At Building 3026, a “hot cell” building (a place where radiochemical work is done behind concrete shielding walls and viewed through thick windows composed of panes of special glass with a liquid, lithium bromide between), there was a job to install new windows in the cells. For the new windows to fit into the walls, it was necessary to remove part of the concrete shielding walls. DeBakker was assigned the task of evaluating a process called the “termiting process.” In this process a gun was used to mix pure oxygen (from cylinders) with aluminum filings and iron oxide and bum away the concrete. DeBakker, working with Jim Graham, his craft supervisor, acquired one of the massive concrete shielding blocks from the Homogeneous Reactor Project to do the testing. They located it to the south of the settling ponds (3513) and began work. The noise created was like standing within 2 feet of a 50-horsepower diesel engine. The materials indeed did cut the concrete, with spatter being hurled so far that the grass in the area was set afire. DeBakker's evaluation ended with the statement, “If I had. to remove a bridge abutment that was at least 200 feet from the bank on either side, I *might* consider using the process.”

Ma Bugg (from R. J. DeBakker)

Before Ken Jamison acquired the basic structure for his lakeside cabin (Jamison successfully bid on a surplus building that was removed from the Laboratory and moved to the lake, where he had work “parties” to build the foundation and set the building upon it). where the field engineers had their frequent fishing parties, the very first fishing party was held near Rockwood on Long Island which was accessible only by boat. M. A. Bugg was head of the Utilities Section of Earl Parrish's Mechanical Department (that was before Utilities was moved into the Operations Division). The father-in-law of one of the lead engineers was owner of a special beverage store, so this engineer provided beverages at the fishing party. One of the party people enjoyed the beverages but was unable to control himself after indulging. He consumed quite a bit on Friday night, and on Saturday morning he was still under the effects when it was time for the fishermen to move out for some serious work-fishing! When the gang had paired up and embarked in their boats, Bugg was left with this person

who had not sobered up. He had no way off the island except by boat. (said Bugg, “If I had a way off, I would have left him to die!”) from that day forth, M. A. Bugg was known as Ma Bugg.

Manhattan Project and Eric Wischhusen (from R. J. DeBakker)

Eric Wischhusen was one of the associate lead engineers of the 1950s and was assigned to work on the Homogeneous Reactor Project. DeBakker said that Eric was employed at the time of the Manhattan Project and once was sent to Cincinnati, Ohio, and told to stay with some materials that were unloaded from river barges onto the dock and destined for Oak Ridge. He was also told that in case of dire circumstances, he was to get in touch with the nearest military installation for assistance and tell them that he was there representing the Manhattan Project. The incident occurred during a rainy season, and the Ohio River was rising and endangering the materials that he was sent to watch. So he called the nearest military installation and did as he was told. Eric didn't know what the Manhattan Project was, but the military brass did. He was amazed at the number of military personnel that arrived to move the materials.

Eric confirmed this story. He worked at all three Oak Ridge Plants (X-10, K-25, and Y-12) during his 10 years (1944-1954) of employment. He was told that if he had an idea about what was being done at the plants, “you are to keep your mouth shut.” Eric's job was materials expeditor, and much of his time was spent in Cincinnati working closely with the material suppliers. He said that indeed the Ohio River so often flooded some of the buildings that the metals suppliers located their foundries on the fifth floor of their buildings.

Eric and his security clearance (from E. Wischhusen)

Eric was the son of a German father and an English mother. He received much of his education at schools in Berlin, although he was born in Brooklyn. By the time he found his place in Oak Ridge (1944–1954), he had traveled to Germany six times (apparently some of his sojourns were lengthy). His father was a friend of Mr. Eastman of the Tennessee Eastman Company, contractor of the Oak Ridge Plants. It was quite natural that Eastman was able to find a job for the son of a friend, so Eric was employed at Y- 12. For 6 years he worked at Y-12 without a clearance-he didn't even apply for employment until about 1950, when someone discovered that he had no clearance. He was placed in the “bull pen” to await his clearance. “How long will it take for my clearance to come through?” he asked. “About 6 months,” he was told. “The others were getting clearances in 2 weeks. Why 6 months for mine?” he asked. The others were from places like Lenoir City where the people never got out of the county; a clearance could be gotten in a couple of days. For people of foreign parentage and who were widely traveled, it took considerably longer.

Jack Packard and the Electrical Parts Warehouse (from Joe Keathley)

Joe Keathley was an instrument technician of the apprentice class of 1956 who later became a supervisor in I&C Division. He was hired about the time the I&C Division (previously a part of the E&M Division) was organized. Joe said that Jack Packard (supervisor of the Electrical Department) was of the opinion that his electrical apprentices could learn more about how electrical switches, etc., operated by disassembling and reassembling them than they could from all the book studying they would do, so he let them take things apart. Jack had a warehouse filled with used electrical

components and supplies where anyone with a need could get them at no cost. Someone in Stores learned of this illegal electrical storeroom and had these materials transferred to, the Stores complex at the 7000 Area; because the parts were all “used,” they couldn’t be placed in the Stores inventory, so they were sold as excess property.

The stairway tower on Walker Branch (from C. H. Abner)

Harry Seagren (director/superintendent of the E&M Division, later P&E Division) was a compassionate man who would recognize the shortcomings of a person and talk about it with them and forget it. At the time of the tower episode, Charlie Abner was working for Harry Nichol. They received a work assignment to relocate a 96-foot high stairway-type tower (much like a stairway in a hotel-round and round-and up and up) from the Cesium Forest near Dosimetry Applications Research (DOSAR) (Buildings 7709 and 7710) to the Walker Branch Watershed for the Atmospheric Turbulence and Diffusion Laboratory (ATDL), otherwise known as the Weather Bureau. A 48-foot extension was to be added to the tower for a total of 144 feet. The ATDL people wanted the tower up and ready for use by the time the leaves came out on the trees in the springtime. The tower had been disassembled the previous autumn, and the contract for reassembly was progressing slowly; therefore, the tower would not be ready at the appointed time. Seagren’s earlier admonition was that we would “not subdivide a job to avoid Davis-Bacon” (a Federal law that requires consideration of using a contractor that pays prevailing construction wages for construction work). Abner and Nichol considered the request of ATDL personnel and rationalized that if the tower was erected to treetop level (about 60 feet for less than \$2000, the limit where Davis-Bacon takes over), they would not be in violation of the law. And that is exactly what they did.

Later, Seagren called both Abner and Nichol into his office. It was a joyous time; he gave Abner a card that indicated that he had earned a raise in pay. “Do you have anything to say?” Thanks were in order, but nothing more. “Then I have something to say.” And Mr. Seagren began to relate a tale of how the heavy equipment operators were in need of training, and they were assigned to a job of grading and leveling the ground at a location between Melton Valley Access Drive and the EGCR (Experimental Gas-Cooled Reactor) site. Unfortunately, an AEC/DOE person had been to Washington and was returning to Oak Ridge when his landing was delayed; his plane spent some time circling, awaiting the time when it could land. Its circles took it over the Laboratory. The AEC/DOE person looked down and said, “What in the world is that?” What he saw was the heavy equipment training ground. It was a road (about a half mile in length) that linked Melton Valley Drive with the EGCR site—clearly a construction job—accomplished by a continuous stream of blanket work orders of less than \$2000 each. Needless to say, Seagren had been called to task about it.

Seagren added, “Now, let’s talk about a tower.” So Abner, Nichol, and Seagren talked, and that was the end of that.

(Other sources say that the new road blocked access to a cove that was the favorite fishing hole of an AEC/DOE person; in fact, it was being blocked as he was trying to gain access to it.)

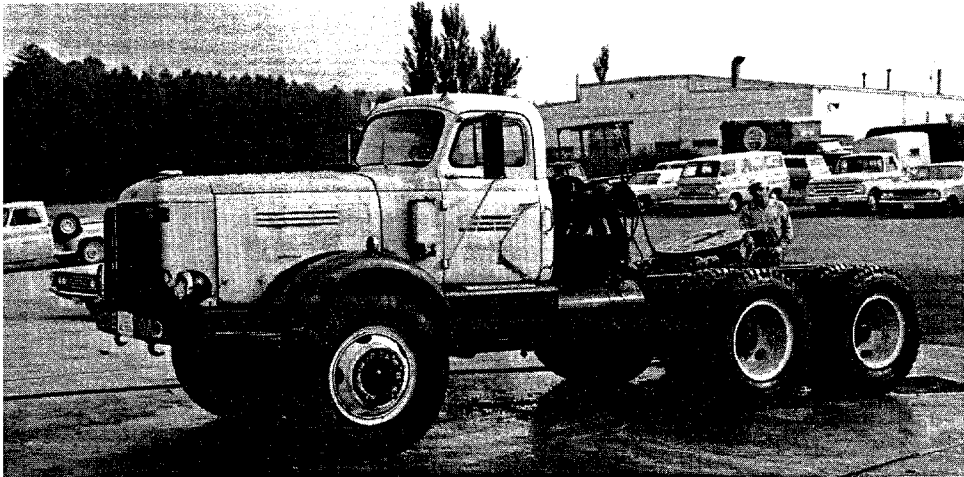
The Field Engineer and his female co-op student

There is a story of a field engineer who was assigned a female co-op student to assist him during the summer. This field engineer worked with a research division whose experiments were conducted in the laboratory with confirmation under actual field conditions, that is, in the fields and woods and up in the trees and in the ground. His work took him to and into places that other field engineers never thought about going.

One job was that of building a lysimeter pit, which was a hole in the ground where water was extracted from the soil for analysis in the laboratory. There were several such lysimeter installations, but this one was in the solid waste storage areas near Trench 7. Many times the engineer had driven his truck through the back country to visit the site where this lysimeter pit was being constructed. The trench boundaries were marked with steel fence posts.

Early one morning, the engineer visited the site to observe progress on the project; also, earlier in the day, a truck had been to the site, and upon leaving, the driver, backing his vehicle, had bent one of the trench corner marker posts over so that it was hidden in the tall weeds. Later in the day, the engineer visited again, this time with the student-assistant. The trench site was on a hill above the main road and a very sharp left turn was required at the corner of the trench. This time, as the engineer approached the top of the hill and made the left turn, he hit the post and drove it through the radiator of the truck. Only one thing to do-walk! Fortune smiled upon the engineer and student-assistant as they walked along the road-a Rust Engineering employee came along. The two hitched a ride with him to the outside world.

As they rode along, the Rust employee must have been very curious about the situation. He may have had thoughts like “Why is this old man out in the woods with this young woman?” and “*dirty old man*” But he didn’t ask any questions. Instead, he talked constantly about the weather.



◀ “Old Blue” (truck) and Leon Tuck (1971).

Later, the “dirty” engineer thought it best to tell his supervisor about the incident (or tell his version before others heard the story and embellished it). Then the engineer told the co-op student that he had discussed the incident with their supervisor, but that he had told that the female was driving and impaled the truck upon the post. “WHY did you do that?” she asked, with much indignation. He replied, “I have been working here all these many years, and I have built up a reputation. An incident such as this could ruin it. You have been here such a short time that you haven’t established your reputation. You can go from here and build yours without any problem.”

T. C. Minton and his pay raise (from T. C. Minton)

T. C. **Minton** had been called into the supervisor’s office to be presented with the card that said that he had earned an increase in salary. A paltry sum! The supervisor was attempting to justify why he had given **Minton** such a small amount, but he wasn’t very convincing. He knew that **Minton** was doing work away from the plant to supplement his income, so he said, “T. C., I know for a fact that you are doing **purty** well!” And **Minton** said, “Yes, I’m making more now than I can save.”

T. C. Minton and his early/early departure (from T. C. Minton)

At the time of this episode, T. C. **Minton** was working as engineering technician with Ernest Early. **Minton**’s supervisor had apparently been noticing that he had been unable to find T. C. during the final minutes before the end of the workday, so he approached him about it. “T. C.,” he said, “have you been leaving early?”, **Minton** is very skilled at twisting words to suit his purpose, so he answered his supervisor’s question as if it were asked as follows: “T. C., have you been leaving Early?” T. C. responded, “I just can’t get ahead of Early at all.” The supervisor left this encounter mumbling to himself.

Bill Prewitt’s career (from J. W. Prewitt)

J. W. Prewitt graduated from high school in 1944 and went to work at the Clinton Laboratory as a laborer. One job he recalls was that of off-loading bags of cement from a truck and carrying them to a barn north of what is now Building 1000. Others helping unload were husky men who were much larger and more capable of performing the task. He matched them bag-for-bag and almost killed himself.

Later he became a clerk in General Stores, and while he was employed in this position, he received notice to report to duty in the Army. Because the work at the Clinton Laboratory was very secret and Bill didn’t know that he was involved in the war effort, he turned down a deferment and went on to serve his country. He entered Belgium near the end of the Battle of the Bulge; from there he went to southern France and then into Germany. He was in the first group destined for the Pacific; but, because the group was first, they were selected to do the records of those who came after; therefore, he missed the Pacific war.

He returned home and rested a couple of weeks before deciding to go back to the Laboratory to see if he could get a job. There he found that he was still eligible for his old job. They wanted him to return to the labor gang, but he refused, saying that he worked in Stores before going into the Army.

The people were reluctant to believe him, but after checking further, they sent him back to the job he had left. While working at that job, he helped set up Chemical Stores in Building 706A (Chemistry Laboratory, now known as Building 3550). From there, he went into the Accounting Department, working with G. W. Tyler and Tom Gammell. Although it meant moving to a job of “lesser importance,” he transferred to “machinist helper” and then into the Apprentice Program where he studied to become a machinist. After that, he became a planner-estimator, then a machinist foreman, and finally retired in June 1985.

The Uranium Machine Shop (from J. W. Prewitt)

In the early days of the Laboratory, there was much to be learned about radioactive materials. This was one of the purposes of the Graphite Reactor. Uranium slugs were inserted into the reactor for irradiation; but before they could be placed in the reactor, they were machined in Building 101, which was located beside the reactor building (present site of the Oak Ridge Research Reactor, Building 3042). Two known characteristics of the material was that it would burn and that the burning metal could be extinguished with water. One of the marks of a machinist in Building 101 was the spray bottle of water he carried, probably like a sidearm. When the uranium caught fire, the machinist would take his spray bottle, give a squirt of water, and the fire was out. In addition to the sidearm of water, water-filled fire extinguishers were placed at various points in the shop for back-up when the small squirt bottles were insufficient.

Uranium machining was done in the days before air conditioning was even dreamed about, and Building 101 was very hot in the summer. Therefore, the little spray bottles of water served another purpose—to spray your comrade so that he would be cooler. You passed someone in the walkway, squeezed the trigger, and GOT HIM! This action resulted in building better spray bottles and led to covert spraying-wetting down your co-worker without his knowing who the culprit was.

One such episode occurred at the water cooler. Someone drilled a hole in the wall behind the cooler and inserted a spray tube on the other side of the wall. Just as someone would start to get a drink, the spray from the tube would hit him in the face. The person would look around to see who the guilty party was, but because this was a secret installation, there was no one in sight, and the victim couldn't discover the identity of the assailant.

Paul Kofmehl and the uranium fire (from J. W. Prewitt)

Paul Kofmehl came from Switzerland to work at the Clinton National Laboratory in 1947. In July 1947, he was superintendent of the Research Shops Department of the Research Engineering Division. He was apparently a demanding taskmaster; for example, on one occasion he was observing “Jughead” Brown (often people were known only by their nicknames) as he was machining a uranium slug at Building 101. Kofmehl was not satisfied with the speed at which Jughead was operating the lathe. Jughead was using adequate cutting oil for cooling, but he was running the machine too slowly for Kofmehl. “Can't the machine run faster?” he asked in a heavy German accent. Jughead answered, “Yes, it can.” And with that, Kofmehl adjusted the controls of the machine. Immediately the uranium began to burn, igniting the cutting oil and chips of metal from the machining operation. “Put it out! Put it out!” shouted Kofmehl. And Jughead, with his hands in his pockets, said, “You put it out. You started it.” (Kofmehl, a development engineer in the E&M Division, died in 1958.)

Herman Lloyd and the sippy tissue (from J. W. Prewitt)

Another method for “keeping a co-worker cool” was to saturate a facial tissue with water and toss it at your victim. The water made the tissue sippy, enabling the tosser to cast it further, often completely across the building. When it hit its victim, it splattered, soaking the recipient.

Herman Lloyd was in the tool room, and through the doorway he spied a potential victim working at his machine on the far side of the shop. He threw a wet tissue, and as he did, his foreman, A. B. Keeney, stepped into its path. It hit him in the side of the head with such force that it spun his head around and left a red mark on his face. Poor Herman! He was trapped in the tool room. For about five minutes Keeney glowered at Herman and then uttered, “I ought to get rid of you!” but he didn’t, and sometime later, Herman became a member of the management staff.

Buster Wright and the water battles (from J. W. Prewitt)

Buster Wright was supervisor of the machine shop, and he had his fill of the water battles that were continually going on in his shop—so tired that once he went to the water cooler and took one of the small conical paper drinking cups, filled it with cold water, and poured it down the collar of one of the machinists. The man didn’t flinch; he kept working as though nothing happened. Buster got another cupful and went to a second man. Still, no one in the shop acknowledged what was happening. Buster continued until he had poured cold water down the shirt of every man in his shop; then he explained his actions—he was tired of the water fights. After listening to Buster for several minutes, Bill Prewitt took one of the water-filled fire extinguishers and began pumping and spraying, chasing Buster all around the shop, Buster yelling every step. Apparently Buster didn’t seek revenge because Bill eventually became machinist foreman before retiring in 1985.

Free dinner for Bill Prewitt (from J. W. Prewitt)

Bill Prewitt was in the first class of apprentices to graduate; but on the appointed day, Bill wasn’t there. No one had told him when graduation was to be held, and he was on vacation. Upon hearing that he had missed this important time in his career, he was very upset with his management. He created such a fuss about it that the apprentice coordinator, H. R. Brown, insisted that he be permitted to buy Bill’s dinner for him—and one evening they did just that—dinner in Oak Ridge.

The woody stick (from Kenneth Dyer)

One of the engineering assistants was named Woody, and Woody was never able to talk without waving his hands. If his hands were tied, he couldn’t say a word. Woody also liked to talk to women. Then, too, he couldn’t talk without lots of hand motions. Some of the women suggested that they needed a “woody” stick when he was around to whack his hands.

Program engineers’ fishing parties (from C. H. Abner)

Several times a year during the warmer months, the Program Engineering Section held fishing parties at Ken Jamison’s cabin (see Ma Bugg story earlier for Jamison’s acquisition of this cabin) on Watts Bar Lake south of Rockwood. (Ken was E&M department’s design assistant, then

superintendent, and later P&E's assistant division superintendent.) On the designated Friday evening, most of the program (later, field) engineers would join those who had gone shortly after noon to pick up the **ribeye** steaks, potato salad, baked beans, etc., and beverages for the festivities.

The occasion? Fishing, of course! Some-few-maybe half a dozen-of the people would show up with their fishing gear and head to the banks. The rest would begin by popping the tops of beverage cans and standing around the fire, spinning yarns of days (not too distant) gone by. And then they would select their steak, place it on the grill, and pop the top of another. By this time the early arrivers had popped the tops of so many that they had to have someone else decide when the steaks were done.

Eatin' time! Along about this time, twilight had set in; the group would begin to divide into smaller units of six or eight and gather around tables in the cabin where they would pop the top of another and deal the cards for low-stakes poker. Several hours later, with the "kitty" now in the pockets of two or three lucky individuals, the yams all ravelled, and the tops all popped, the group divided into still smaller units of two or three to head for home, leaving a few hardy souls to spend the night, clean up the mess, and fight the mosquitoes.

Fred Anderson-temporary employment (ORNL News, Feb. 14, 1967)

Before coming to work for the Laboratory, Fred Anderson, a supervisor in the 7012 Central Shop, lived in the Nashville area. Thinking that the employment at Oak Ridge would be temporary, he kept his residence in Nashville, returning on weekends to spend some time with his family. This arrangement continued for some 25 years missing only two weekends until he retired in January 1969—all because he thought the job was temporary.

Trivia

Did you know that . . .

Oak Ridge National Laboratory was first called Clinton Laboratories (until 1948)? Next it became Clinton National Laboratory for about 2 months; then Oak Ridge National Laboratory from March 1948 until 1975. In 1975, it was named Holifield National Laboratory, but this change caused such a commotion among the populace that the name was changed back to Oak Ridge National Laboratory (*Source*: Laboratory archives and personal knowledge).

In 1943, the eastern boundary of the Laboratory was at Fifth Street (*Source*: Early Laboratory site drawings).

The original steam plant is presently known as Building 2011, and the area to the east of Building 2011 [between Building 2010 (cafeteria) and Central Avenue] was used as the coal yard? (*Source*: Early Laboratory site drawings, photos and J. W. Prewitt.)

The building housing the original steam plant was decommissioned late in 1948 after the new steam plant (Building 25 19) was completed, and it was converted to house the 2-MeV-Van de Graaff accelerator? (And later the building was converted to a Metals and Ceramics laboratory.) (*Source*: *THE NEWS*, Laboratory newspaper.)

The extension of First Street south of West Portal was known as Coal Yard Road because coal for the steam plant was stored there (where a parking lot is now located)? Coal was trucked to the steam plant as needed. (Source: J. W. Prewitt and V. T. Carmony.)

The original steam plant (Building 2011) was unable to meet the demand for steam; two auxiliary steam generating plants were constructed, one south of Building 1000 and the other at the east end of the plant south of intersection of Fifth Street and Central Avenue to meet the additional requirement (Source: V. T. Carmony and *History of ORNL, 1943-1963*; W. E. Thompson, plant photos).

There was an incinerator located across White Oak Creek south of the Settling Ponds for burning noncontaminated combustible wastes (Source: Laboratory archives).

The site of Building 2010 (cafeteria) was originally the water treatment plant (Source: Early Laboratory site drawings, photos and J. W. Prewitt).

The building west of the cafeteria that is constructed into the hillside and now used for storing cafeteria goods was originally a water reservoir (Source: Early Laboratory site drawings).

For about 22 years there was a large elevated water tank (on a tower) on the knoll between Buildings 2001 and 3017. At first it was used for storing water for fire protection, and later it was used for process water storage. This tank was built in 1925 and was used in Nashville until it was relocated in 1943 to the site on the top of the hill where it remained until it was removed in 1965. (Source: *The News*, Laboratory newspaper.)

The garage was once located across the street south of Building 2013, and later, on the northwest corner of the intersection of White Oak Avenue and Third Street where Building 253 1 (Radioactive Waste Evaporator Building) is now situated? (Source: Early Laboratory site drawings and J. W. Prewitt).

In the early days of the Laboratory (1943–1944), there was a mounted security force, and the horses were stabled in a barn located north of Building 1000 (Source: J. W. Prewitt and Laboratory archives).

Building 1000 was originally located at the K-25 Plant and was moved to X-10 about 1947? (Source: *History of ORNL, 1943–1963*; W. E. Thompson).

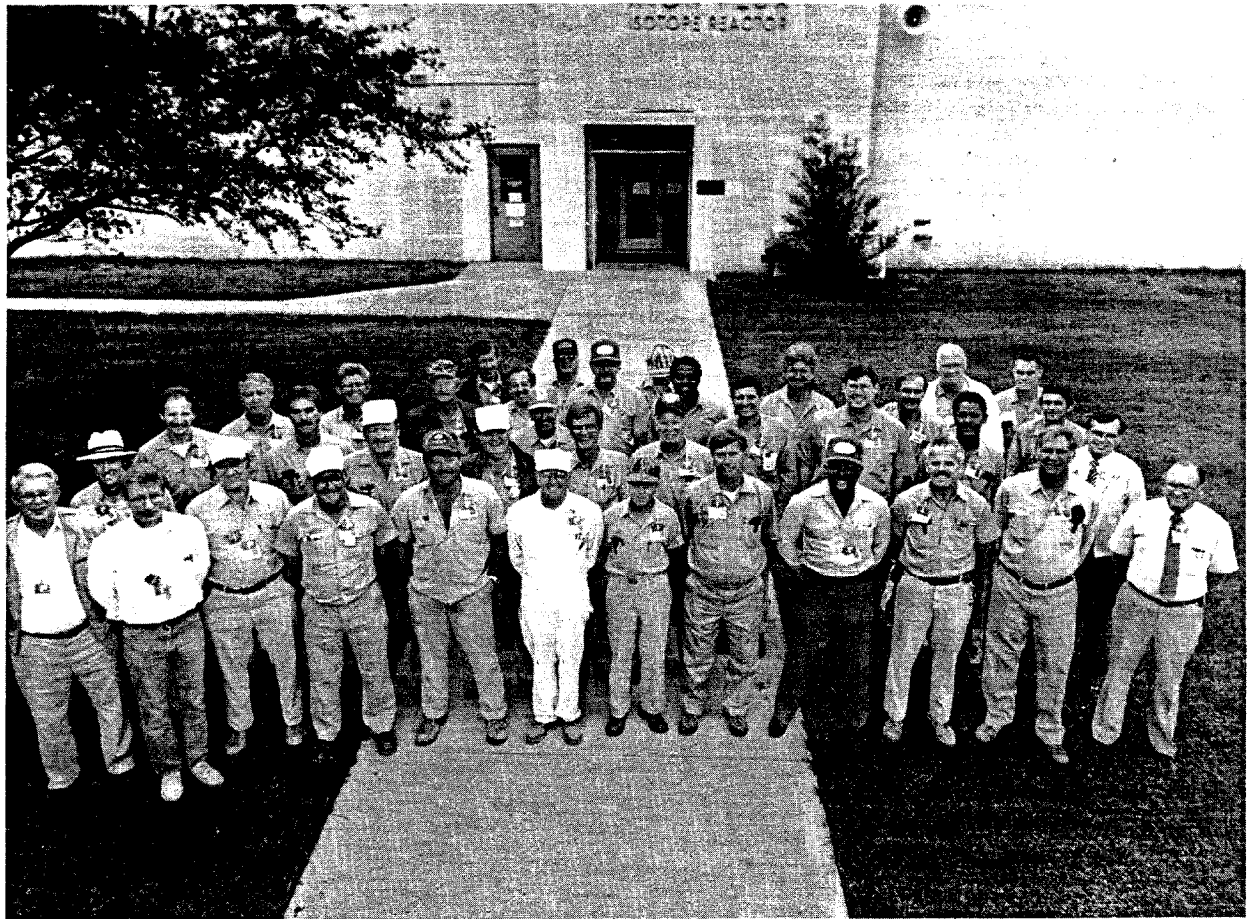


Fabrication Department. Tool management in Central Mechanical Shop (Building 7012). C. D. Viles, Tool Crib attendant, and J. D. Eiler at right (1955).



ORNL
25
YEARS

Plant Services. Ray E. Oakes is the first ORNL employee to reach 25 years of service at ORNL. He began work with the first carpenter crew on the first day of construction at ORNL in 1943. His first two days were spent building offices in Scarboro School and shoring bridges on Bethel Valley Road to support heavy equipment moving into the area. He later became building maintenance supervisor (1968).



Plant And Equipment work force assigned to **HFIR** during restart preparations. Left to right, front row: D. P. Gannon, Tom Underwood, Ralph Porter, Bill Palmer, Bill Hawkins, Jim Rhodes, Kenny Davis, Bill Lankford, Henry Hudgens, Bill Collins, J. T. Robinson, and Wayne Paul. Back row: Ken Lawson, Ed Blackbum, Buddy Miles, Tom R. Powers, George H. Woods, Sam Neely, G. A. Wilson, Bob Bruce, C. Dykes (back), Clyde **Fritts**, Leon Bradley, Bud Fraker, Larry Anderson, Bill Carter, Pete Hillis (cap over eyes), Doug Childers, Darryl Madden, **D. W.** Robertson, Jim Gibson, Maxie Rose, Mike Humphrey, Joe Arwodd, Ross Long, Jim Murphey, Don **McKendrick**, and Bob Lauer (1989).