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Army Materiel Command Activation 'Merges' Technical Services

U.S. Army Materiel Command assumption of operational responsibility Aug. 1 "merged" most of the traditional roles of 5 of the 7 Technical Services in the interest of the research and development acceleration essential to a modern Army.

Commanding General of the AMC, Lt Gen Frank M. Besson, Jr., exercises control over a vast network of military installations, involving approximately 166,000 civilian employees and 20,000 officers, with a total inventory of $23.5 billion and estimated annual expenditures of $7.5 billion.

Materiel operation functions of the Technical Services, vigorously and successfully defended in many an historic organizational control struggle, are now concentrated, with relatively few exceptions, in the AMC.

From headquarters in Washington, D.C. (Building T-7 at Gravelly Point), the AMC operates through seven major subordinate commands. Empowered as no other command in U.S. Army history, the AMC directs activities of depots, laboratories, arsenals, proving grounds, test ranges, procurement offices and transportation terminals throughout the continental United States.

The established concept of operations makes the AMC responsible for providing the overall policy direction for its immense complex of materiel activities. Major subordinate commands, the "mid-management level,"

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U.S. Army Chief of Staff General George H. Decker presents Army flag to Lt Gen Frank Besson, Jr., Commanding General, Army Materiel Command, marking operational status.

Briefings Report Status Of Army Reorganization

Overall status of reorganization was explained to Department of the Army Headquarters key personnel at a series of briefings this past month. General Orders No. 44 directed the most significant actions, all effective Aug. 1, as follows:

- The Office of the Chief Signal Officer is placed under the general staff supervision of the Deputy Chief of Staff for Military Operations.
- The Office of the Chief of Ordnance is discontinued and all of its assigned functions, personnel, funds, records and equipment transferred to the U.S. Army Materiel Command.
- The Office of the Chief Chemical Officer is discontinued and all of its assigned functions, personnel funds,

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FEATURED IN THIS ISSUE . . .

Moving of Big Guns for Research Poses Logistic Problem

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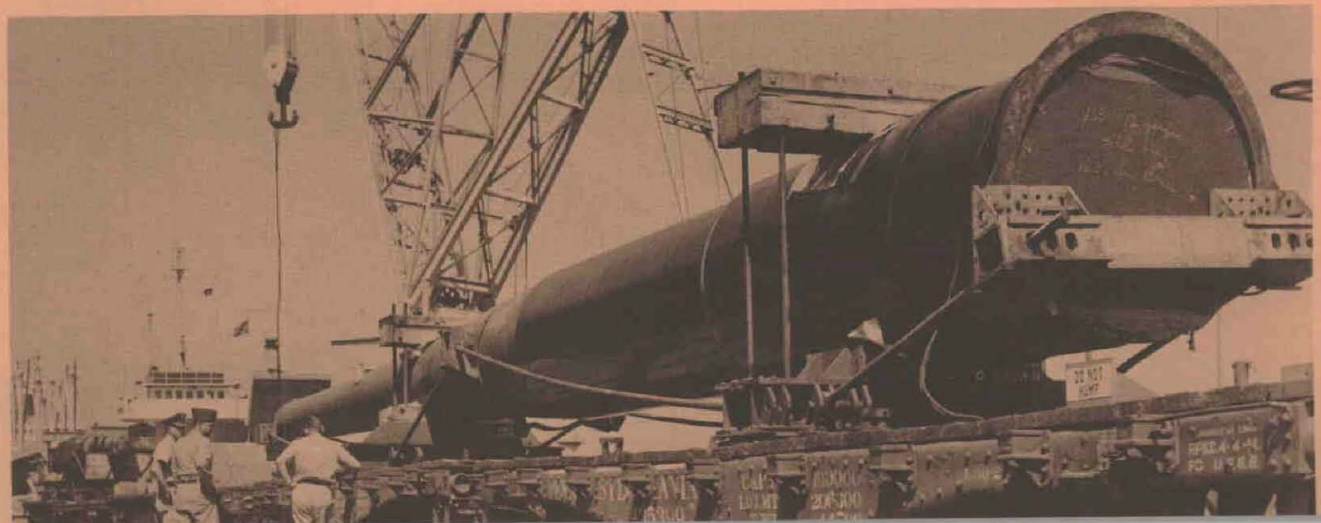

Army R&D Newsmagazine

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Theme of the Month: Management to Cut Lead Time

By Lt Gen Frank S. Besson, Jr.
Commanding General, Army Materiel Command

(Upon the occasion of the Centennial banquet at Rock Island Arsenal, Rock Island, Ill., Lt Gen Frank M. Besson, Jr., discussed functions of major commands under the Army reorganization, including the Army Materiel Command which he heads. Excerpts from that speech follow.)

. . . The fact that the Army is reorganizing may seem surprising. Since 3 July 1775 to the present day, the U.S. Army has fought in many wars, and has enjoyed the distinction of never having lost any of them. From the days of the Continental Army, when the troops sometimes furnished their own equipment, to the present, when they are being furnishd the finest equipment in the world, the Technical Services have provided the necessary goods and services with ever-increasing efficiency.

In the light of such an outstanding won-and-lost record, and in recognition of the excellent weapons and equipment in the hands of Army troops today, why should the U.S. Army be reorganized? The answer is complex.

Part of the answer derives from the fact that it is hard to measure the peacetime efficiency of a military establishment. The U.S. Army is a non-profit organization; unlike big business, it cannot furnish a profit-and-loss statement. For this reason alone, management posture of the Army must be constantly reviewed to insure maximum efficiency in fields such as logistics.

Further, just as the art of warfare is evolving rapidly and creating new demands on the military strategists and tacticians of the Army, so is the science of administrative organization and management placing demands on those charged with the administration of overall functions and operation of the various military departments.

Another reason for re-examination of the Army organization is the fact that, in recent years, there have been changes in the defense environment which have necessitated organizational change throughout the military. There has been an impressive number of changes to centralize authority in the Department of Defense.

The establishment of the single managers, for items like food and clothing, for example, created agencies that cut across all service lines. The activation of the Defense Supply Agency, a headquarters commanding the sundry single managers, and responsible directly to the Secretary of Defense, further changed the overall logistic picture.

Besides centralization of authority at the highest level, another factor which influenced a change in the Department of Defense in general and the U.S. Army in particular, was the type of warfare taking place since the end of World War II. The emphasis has been on tests of strength in limited wars and in remote areas. The mutual fear of resorting to full thermonuclear war has resulted in small and relatively isolated campaigns that are both difficult to forecast and challenging to support.

The problem of sending 5 megatons of destruction to its objective on a few minutes' notice has been solved. The problem of flying a Division to a remote and sometimes almost inaccessible objective and supporting it for sustained periods of time has not been completely mastered. The Army needs a faster response to the time demands placed upon it. Streamlining the organization is one way to help win this faster response.

Yet another factor that dictated a review of the Army's logistical organization was public opinion. In spite of all human efforts, the cost of maintaining a balanced military posture is always on the increase. Defense expenditures constitute the largest slice of the national appropriation pie. No one can fail to notice the enormous sum of money being expended on the military. Everyone would like to see it reduced. Centralized control over the materiel area focuses attention on the responsible agency.

All of these factors—new management techniques, centralization of authority in DOD, emphasis on limited wars, and public interest in use of Government funds—taken together led to adoption of a plan of reorganization designed to streamline Army operations.

The Army Materiel Command, responsible for providing weapons and equipment to the Army . . . must integrate and lead the efforts of 166,000 Army civilian personnel and 20,000 military, plus countless millions in industry. Operations will be conducted at over 200 installations and offices, 15 arsenals and 35 depots. The task will be initiated with a $23.5 billion inventory of equipment, weapons and supplies. We will have an annual expenditure of $7.5 billion. This is not small business. All facets of the Nation's economy will be affected in some way.

To manage our job, we have worked out an organizational structure in

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AMC Controls 186,000 Employees, $7.5 Billion Annual Program

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supervise performance of assigned missions. Actual execution of the materiel program is accomplished through individual installations.

Maximum use of "vertical management" techniques is planned by the AMC. Project officers will be vested with broad powers to expedite development, production and delivery of selected major or critical weapons and equipment General Besson said.

Five of the seven major components of the AMC are classed as commodity-type commands, namely: U.S. Army Weapons Command, U.S. Army Munitions Command, U.S. Army Mobility Command, U.S. Army Missile Command, and U.S. Army Electronics Command. Functional-type commands are the U.S. Army Supply and Maintenance Command, and the U.S. Army Test and Evaluation Command.

AMC Headquarters also will supervise procurement districts and offices, the Army Logistics Management Center, the Ordnance Management Engineering Training Center, the Diamond Ordnance Fuze Laboratories, the Quartermaster Research and Engineering Command, and the Maynard (Texas) Test Activity.

Currently the AMC commands personnel and operations at all activities on an "in place" basis. All are expected to be phased into the new AMC organization by Dec. 31, 1962.

Key members of General Besson's staff as of Aug. 1 included: Maj Gen Wm. J. Ely, Deputy CG; Brig Gen F. P. Campbell, Chief of Staff; Maj Gen W. B. Bunker, Comptroller and Director of Programs; Brig Gen T. L. Beck, Director of Programs; Col E. G. Hardaway (nominated for B.G. rank), Deputy Comptroller; Maj Gen F. H. Britton, Director of Research and Development;

Brig Gen J. G. Zierdt, Deputy Director of R&D; Brig Gen L. W. Merriam, Chief, Development Division; Brig Gen E. J. Gibson, Director of Procurement and Production; Col J. A. Goshorn (nominated for B.G. rank), Deputy Director of Procurement and Production; Brig Gen W. H. Harris, Director of Personnel and Training, with W. S. Charin as his Deputy; Col C. C. Haug (nominated for B.G. rank), Director of Installations and Services; Kendall M. Barnes, General Counsel; Col P. A. Feyereisen, Deputy Chief of Staff;

Col J. M. Christensen, Secretary of the General Staff; D. A. Sawyer, Special Assistant for Inter-Group Relations; Alexander Corey, Special Assistant for Contractor Labor Relations; Lt Col R. J. Coakley, Information Officer; Col C. F. Matthews, Inspector General; Col H. K. Greer, Judge Advocate; Chaplain (Col) K. M. Sowers, Chaplain; Col H. E. Alphin, Chief, Administrative Office; Col P. D. Hickman, Chief, Data Systems Office; Col C. R. Teabolt, Chief, Mutual Security Office; J. L. Schaffer, Chief, Management Science Office.

The AMC Headquarters controls the following procurement offices: Birmingham Ordnance District, Birmingham, Ala.; Boston Ordnance District, Boston, Mass.; Chicago Ordnance District, Chicago, Ill.; Cincinnati Ordnance District, Cincinnati, Ohio; Cleveland Ordnance District, Cleveland, Ohio; Detroit Ordnance District, Detroit, Mich.; Los Angeles Ordnance District, Pasadena, Calif.; New York Ordnance District, New York, N.Y.; Philadelphia Ordnance District, Philadelphia, Pa.; St. Louis Ordnance District, St. Louis, Mo.; San Francisco Ordnance District, Oakland, Calif.

Three of the AMC Headquarters research, engineering and test activities are located at Aberdeen Proving Ground, Md., namely; U.S. Ballistics Research Laboratories, U.S. Army Coating and Chemicals Laboratory, and U.S. Army Human Engineering Laboratory. Others are: Armed Forces Food and Container Institute, Chicago, Ill.; U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, N.H.; U.S. Army Deseret Test Center, Salt Lake City, Utah; U.S. Army Liaison Detachment, Wright Patterson AFB, Ohio; U.S. Army Quartermaster R&E Command, Natick, Mass.; U.S. Army Transportation Aviation Field Office, Washington, D.C.

Intelligence activities under AMC Headquarters jurisdiction are concentrated at Arlington Hall Station, Va., namely: U.S. Army Chemical Corps Intelligence Agency, U.S. Army Ordnance Technical Intelligence Agency, U.S. Army Signal Corps Intelligence Agency, and the U.S. Army Transportation Intelligence Agency. The AMC also controls the Quartermaster Intelligence Agency in Washington.

OTHER ACTIVITIES placed under AMC Headquarters jurisdiction include: Joint Military Packaging Training Center, Rossford Ordnance Depot, Ohio; Quartermaster Activities, Cameron Station, Va.; U.S. Army Logistics Management Center and the U.S. Army Logistics Manpower Office, both at Fort Lee, Va.; U.S. Army Major Item Supply Management Agency, Letterkenny Army Depot, Pa.; U.S. Army Military Assistance Program Logistics Agency, Washington, D.C.

U.S. Army Ordnance Field Activ-

(Continued on page 4)

Lt Gen Besson's Message to Army Materiel Command Personnel

The Army Materiel Command today [August 1] becomes a full-fledged member of the U.S. Army team. Its mission, stated in its simplest terms, is to equip the Army to take the field—whenever, wherever, and however it is called upon.

For all of us in AMC and its component elements, this mission represents an unprecedented challenge and an unlimited opportunity. It is a challenge because never before has there been a single integrated organization specifically conceived and designed to provide the Army's weapons and equipment.

For months now those of us charged with bringing AMC into being have been at work developing countless charts, graphs, procedures, and directives. Despite the efforts expended, however, no organization can be better than the people who operate it. The measure of AMC's success will be the measure of our individual successes—yours and mine—in the performance of our everyday responsibilities.

Each of you brings to AMC a specific skill or experience. Most of you bring a personal enthusiasm for your special field of work. Many of you also bring a time-tested loyalty to the Technical Services and the other Army elements with which you previously were associated.

It is important that you bring all these things to AMC. We need your skill and experience. Particularly, we need your enthusiastic interest in your specialty. Above all, we need your capacity for loyalty to what is now our common cause: That the U.S. Army shall be the best equipped in the world.

Despite its newness in the Army spectrum, AMC represents a merger of proud traditions that extend, in some instances, to the birth of the Army itself. With your help, I am confident AMC will prove worthy of that heritage.

AMC Conducts Program Through 7 Major Subordinate Commands

(Continued from page 3)

ity, including Civilian Personnel Agency, Facilities and Services Agency, Production Equipment Agency, Cleveland Ordnance District Industrial Storage Facility, Lordstown Military Reservation, Ohio; Detroit Ordnance District Industrial Storage Facility, Fort Custer, Mich.; U.S. Army Ordnance Field Safety Agency, Indiana Ordnance Plant, Ind.; U.S. Army Ordnance Management Engineering Training Agency, Rock Island Arsenal, Ill.; U.S. Army Research and Development Manpower Survey Office, Washington, D.C.; U.S. Army Standardization Group, Canada, Ottawa, Canada; U.S. Army Standardization Group, United Kingdom, London, England.

Supply & Maintenance

Under the command of Lt Gen August Schomburg, with headquarters in Building Tempo K, Washington 25, D.C., the U.S. Army Supply and Maintenance Command, AMC, has the responsibility for storage, handling and distribution of stocks of supplies and equipment valued at about $20 billion.

Operations of the command extend throughout the United States, require more than 70,000 employees, and include approximately 150 field installations and activities, among them 43 depots and maintenance shops.

Transportation Terminal Commands, Overseas Supply Agencies in New York, San Francisco and New Orleans, and a large number of agencies and activities engaged in supplying U.S. Army troops on a worldwide basis are assigned to the control of the S&MC.

General depots controlled by the S&MC include: Atlanta General Depot, Forest Park, Ga.; Columbus General Depot, Columbus, Ohio; Fort Worth General Depot, Fort Worth, Tex.; Memphis General Depot, Memphis, Tenn.; New Cumberland General Depot, New Cumberland, Pa.; Schenectady General Depot, Schenectady, N.Y.; Voorheesville Depot Activity, Voorheesville, N.Y.; Sharpe General Depot, Lathrop, Calif.; Alameda Annex, Alameda, Calif.; Tracy Depot Activity, Tracy, Calif.; Utah General Depot, Ogden, Utah; Auburn Depot Activity, Auburn, Wash.; Transportation Rail Equipment and Maintenance Shop, Hill AFB, Utah.

Other depots under S&MC jurisdiction include: Granite City Engineer Depot, Granite City, Ill.; Anniston Ordnance Depot, Anniston, Ala.; Benicia Arsenal, Benicia, Calif.; Black Hills Ordnance Depot, Igloo, S. Dak.; Blue Grass Ordnance Depot, Richmond, Ky.; Erie Ordnance Depot, Port Clinton, Ohio; Letterkenny Ordnance Depot, Chambersburg, Pa.; Mount Rainier Ordnance Depot (Activity—Fort Lewis), Tacoma, Wash.; Navajo Ordnance Depot, Flagstaff, Ariz.;

Pueblo Ordnance Depot, Pueblo, Colo.; Raritan Arsenal, Metuchen, N.J.; Red River Ordnance Depot, Texarkana, Tex.; Rossford Ordnance Depot, Toledo, Ohio; Savanna Ordnance Depot, Savanna, Ill.; Seneca Ordnance Depot, Romulus, N.Y.; Sierra Ordnance Depot, Herlong, Calif.; Sioux Ordnance Depot, Sidney, Neb.; Tooele Ordnance Depot, Tooele, Utah; Umatilla Ordnance Depot, Hermiston, Ore.; Fort Wingate Ordnance Depot, Gallup, N. Mex.;

Lexington Signal Depot, Lexington, Ky.; Sacramento Signal Depot, Sacramento, Calif.; Tobyhanna Signal Depot, Tobyhanna, Pa.; U.S. Army Signal Corps Packaging Standards Office, Tobyhanna Signal Depot, Pa.; Charleston Transportation Depot, North Charleston, S. C.; Camp Leroy Johnson, New Orleans, La.; Fort Mason, Calif.; Rio Vista Storage Area, Rio Vista, Calif.;

Louisville Medical Depot, Louisville, Ky.; Camp Stanley Storage Activity (Red River Ordnance Depot), San Antonio, Tex.; Coosa River Depot Activity (Anniston Ordnance Depot), Talladega, Ala.; Desert Depot Activity, Tooele Ordnance Depot, Utah; Rock Island Depot Activity, Rock Island Arsenal, Ill.

The U.S. Army Supply and Maintenance Command is assigned control of the U.S. Army Transportation Terminal Commands for the Gulf at New Orleans, La., for the Atlantic at Brooklyn, N.Y., and the Pacific at Fort Mason, Calif.

Army terminals within S&MC jurisdiction include: Beaver Army Terminal, Clatskanie, Ore.; Brooklyn Army Terminal, Brooklyn, N.Y.; Hampton Roads Army Terminal, Norfolk, Va.; King's Bay Army Terminal (inactive), St. Mary's, Ga.; New Orleans Army Terminal, New Orleans, La.; Oakland Army Terminal, Oakland, Calif.; Sunny Point Army Terminal, Southport, N.C.; Theodore Army Terminal, Theodore, Ala.; U.S. Army Transportation Terminal Agency, Seattle, Wash.

Currently under permit to the Defense Supply Agency but assigned to the S&MC are the Philadelphia Quartermaster Center, Philadelphia, Pa., and the Richmond Quartermaster Depot, Richmond, Va.

Other S&MC activities include: Joint CONEX Control Agency, Washington, D.C.; Quartermaster Activities, Boston Army Base, Mass.; U.S. Army Area Support Office, Chicago, Ill.; U.S. Army Maintenance Board, Fort Knox, Ky.; U.S. Army Maintenance Data Processing Agency, Raritan Arsenal, N.J.; U.S. Army Ordnance Packaging Agency, Rossford Ordnance Depot, Ohio; U.S. Army Overseas Supply Agency, New Orleans, La.; U.S. Army Overseas Supply Agency, San Francisco, Calif.; U.S. Army Overseas Supply Agency, New York, N.Y.;

U.S. Army Quartermaster Petroleum Center, Washington, D.C.; U.S. Army Signal Corps Inspector General Field Office, Sacramento, Calif.; U.S. Army Support Command, Philadelphia, Pa.; U.S. Army Support Command, Richmond, Va.; U.S. Army Transportation Aeronautical Depot Maintenance Center, Naval Air Station, Corpus Christi, Tex.; U.S. Army Transportation Aircraft Maintenance Shop, Fort Riley, Kans.; U.S. Army Transportation Freight Consolidating Sta., Granite City Army Depot, Ill.

Mobility Command

Immensity of the U.S. Army Mobility Command operations, which began Aug. 1, is indicated by two facts: a budget of about $2.5 billion for FY 1963, and responsibility for research, development, production and maintenance support of some 340,000 items.

Maj Gen Alden K. Sibley took command of MOCOM June 1 and Brig Gen Hallet B. Edson has been assigned as Deputy CG. Activities at nine major field installations under their jurisdiction will employ about 14,000 military and civilian personnel. The Headquarters staff of 600 consists principally of scientific, engineering and technical personnel.

Located temporarily in the Michigan Ordnance Missile Plant, 16 miles north of downtown Detroit, MOCOM Headquarters will be established permanently in the Detroit Arsenal, Warren, Mich., when it is completed in July 1963. The present mailing address of Center Line, Mich., is to be retained.

Responsible for more than half of the end items assigned to Army Materiel Command subordinate commands, MOCOM will manage: electrical and generating equipment, construction and service equipment, bridging and barrier equipment, general mobility supplies, general purpose vehicles, all Army aircraft, aero-

nautical equipment, aerial delivery equipment, tank-automotive vehicles, and surface tranport equipment.

The Command is responsible not only for all items which provide mobility for U.S. Army units, but also those which deny the enemy mobility.

Installations assigned to MOCOM are the Detroit Arsenal and the Lima (Ohio) Ordnance Modification Center. The Command has control over the following industrial plants:

Birdsboro Ordnance Steel Foundry, Birdsboro, Pa.; Cleveland Ordnance Plant, Cleveland, Ohio; Coraopolis Ordnance Steel Foundry, Coraopolis, Pa.; East Chicago Ordnance Steel Foundry, E. Chicago, Ind.; Lenape Ordnance Modification Center, Newark, Del.; Muskegon Ordnance Steel Foundry, Muskegon, Mich.; Pacific Ordnance Steel Foundry, Pittsburgh, Calif.; St. Louis Ordnance Steel Foundry, St. Louis, Mo.

Other activities assigned to MOCOM include: U.S. Army Engineer Maintenance Center, Columbus, Ohio; U.S. Army Engineer Procurement Office, Chicago, Ill.; U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.; Engineer Proving Ground, Fort Belvoir; U.S. Army Engineer Supply Control Office, St. Louis, Mo.;

U.S. Army Quartermaster Equipment & Parts Commodity Center, Columbus (Ohio) General Depot; U.S. Army Tank-Automotive Center, Detroit Arsenal, Mich.; U.S. Army Transportation Aviation Field Office, Washington, D.C.; U.S. Army Transportation Materiel Command, St. Louis, Mo.; U.S. Army Transportation Research Command, Ft. Eustis, Va.

Missile Command

As its name implies, the U.S. Army Missile Command at Redstone Arsenal, Ala., is responsible for Army rocket and guided missile programs from birth of an idea to finished weapon systems, under the leadership of Maj Gen Francis J. McMorrow. Currently, it manages 20 major weapon programs, involving about $1.5 billion in annual business, and has some 10,000 employees.

Functional operations are under Brig Gen Richard M. Hurst for ballistic missiles and Brig Gen Howard P. Persons, Jr., for guided missiles. Ballistic missiles follow a pre-set or pre-determined path of flight; guided missiles can be maneuvered in mid-air on command from the ground or contained controls.

The Command weapon system management responsibility covers research, design, development, production, maintenance, and supply of all Army missiles and rockets. In addition, the Command does assigned work in support of other Army Installations and agencies in the Department of Defense.

Scientists, engineers and technicians work in the fields of rocket propellants, high temperature metallurgy, intricate guidance and control systems, missile structures and dynamics to improve Army missiles and their reliability. Technology available through other Army installations, private industry and research institutions is utilized to enhance the Command's capabilities.

Redstone Arsenal facilities, representative of an estimated Army investment of about $235 million, include eight modern laboratories, namely: Research, Test and Evaluation, Advanced Systems, Propulsion, Electromagnetics, Guidance and Control, Structures and Mechanics, and Launch and Ancilliary Equipment.

Current weapons programs under Command management are: Ballistic missiles — Pershing, Sergeant, Redstone, Corporal and Missile "B"; battlefield rockets—Honest John, Little John and the M-72; guided missiles — Nike Zeus, Field Army Ballistic Missile Defense System, Mauler, Redeye, Hawk, SS 10-11, ENTAC, Nike Ajax, Nike Hercules, Lacrosse, and several target missiles. The Command also is responsible for the missile of the Shillelagh weapon system.

Compared to the large number of installation and activities assigned to other Army Materiel Command major components, the Missile Command's list of assigned major elements appear deceptively small. Actually the Command has some 40 prime contractors, about 300 first tier and 5,400 subcontractors throughout the U.S., and deals with 60 other Government agencies, including branches of the Armed Forces.

Command personnel are stationed at test sites and missile locations spread over half the world, including several European countries. Activities stretch from Ascension Island in the South Atlantic to the Atlantic Missile Range Army Field Office at Cape Canaveral, from Redstone to developmental testing at White Sands Missile Range, N. Mex., and from Point Mugu, Calif., to Kwajalein in the Marshall Islands.

Assigned to the Command are Redstone Arsenal and the U.S. Army Ordnance Missile Support Agency, also at Redstone, and Watertown Arsenal, Mass. Industrial plants are the Ordnance Missile Plant at Charlotte, N.C., Michigan Ordnance Missile Plant at Warren, Mich., and Tarheel Ordnance Plant, Burlington, N.C.

Weapons Command

Effective Aug. 1, the Army Ordnance Weapons Command at Rock Island Arsenal, Rock Island, Ill., was redesignated as Headquarters, U.S. Army Weapons Command, AMC, under the command of Maj Gen Nelson M. Lynde, Jr.

Expected to direct a program that will involve expenditure of about $1 billion annually, with a Headquarters staff of 1,200 and a total of 12,800 employees, the Weapons Command is comprised of:

Rock Island Arsenal, commanded by Col Martin S. Werngern; Springfield Armory, Springfield, Mass., commanded by Col C. L. P. Medinnis; and Watervliet Arsenal, Watervliet, N.Y., commanded by Col K. T. O'Keefe.

Inactive industrial plants under Weapons Command jurisdiction include the Dickson Gun Plant, Houston, Tex.; Lima Ordnance Steel Foundry, Lima, Ohio; and Ridgewood Ordnance Plant, Cincinnati, Ohio.

The Weapons Command has responsibility for such items as the M-14 rifle, the new 7.62 NATO rifle, the M-61 automatic aircraft weapon for the Air Force, Infantry atomic weapons, the Davy Crockett, various artillery systems (both towed and self-propelled), and certain combat vehicles.

Watervliet Arsenal is responsible for main items, mortars, recoilless rifles, and cannon assemblies; Springfield Armory for individual weapons, machineguns, grenade launchers, certain aircraft armament and secondary armament for combat vehicles; Rock Island Arsenal for field artillery, antitank and antiaircraft mounts, recoil mechanisms, loaders and related equipment, common tools and shop equipment.

The Weapons Command mission statement sets forth responsibility for integrated commodity management of weapons, combat vehicles and associated equipment, including research, design, development, production, maintenance engineering, procurement, cataloging and standardization, industrial mobilization planning, and technical aid to users.

Test & Evaluation

Operational since Aug. 1 as a major element of the U.S. Army Materiel Command, the U.S. Army Test and Evaluation Command is headed by Brig Gen William F. Ryan and headquartered at Aberdeen Proving Ground, Md.

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Army Preparing to Give Value Analysis Program 'Booster' Shot

Implementation of an Army-wide Value Analysis Program as applied to research and development, given a big kickoff in October 1961 at a seminar attended by 300 Army and industry representatives in Washington, D.C., is scheduled for a booster shot.

James N. Davis, Deputy to the Assistant Secretary of Defense (Installations and Logistics) for Production Management, presided at a July 12 meeting of departmental value analysis representatives, including Defense Supply Agency officials.

The agenda included discussion of Secretary of Defense Robert S. McNamara's July 5 memorandum to President Kennedy, subject: Defense Department Cost Reduction Program.

Decisions at that meeting included a number of measures to promote a productive value engineering (synonomous with value analysis) program. Scheduled actions include:

- Expediting of revision of the Armed Services Procurement Regulation.
- Development of a DOD value engineering training film.
- Preparation of a DOD value engineering manual.
- Development of unified value engineering reporting procedures.

In his July 5 memorandum Secretary McNamara said the Air Force and the Navy had reported savings of $64 million this year under value engineering programs, and that the DOD-wide goal is to cut costs through VE at least $100 million annually without loss in component quality.

Inquiry to Army leaders of the Value Analysis Program effort indicated that, as reflected in the most recent reports available, the most appreciable results have been in the Ordnance Corps, where the Army program had its origin.

The Ordnance Corps, reporting its program for nine months of FY 1962, showed a net value analysis savings of $1,066,800. As explained to the Newsmagazine, the net savings is the difference between actual gross savings and the cost of administering the VA activities. Emphasis also was placed on the accuracy of the figure as related to specific VA projects. Overall Army cost reduction results would yield a much higher figure, it was stated.

Another point stressed relative to results of the VA effort since the major push was launched last October is that training of personnel in value analysis procedures is advancing significantly. The Ordnance Corps alone reported that 1,148 employees have had VE training, and that 863 are scheduled for programed courses.

VA courses being given for Army personnel vary from 35 to 80 hours. Watervliet Arsenal is scheduling 35-hour courses as necessary to meet training requirements. The Ordnance Management Engineering Training Agency at Rock Island Arsenal conducts 80-hour courses.

The Army also is cooperating with industry in VA training, with major effort directed through the General Electric Co., which has sponsored a number of 3-week seminars open to Army personnel. The Army Ordnance Missile Command sponsored a symposium attended by some 400 representatives of the Army and industry, about equally divided.

Another major point of progress in the Army VA effort is the publication of Army Regulation 700-47, which prescribes unified procedures. This AR has gained DOD recognition in that the Army has been assigned responsibility for preparation of the DOD manual chapter covering value engineering methodology.

"It should be made clear," said one of the leaders of the Army Value Analysis Program, "that the Army emphasis is on developing the best possible design at the outset, through value analysis and engineering, rather than to try to effect substantial savings by redesigning later, except as dictated by technical gains, that is, state-of-the-art advances."

Army Assigns STOL Development to Canadian Firm

Development of the U.S. Army's short takeoff and landing (STOL) tactical transport aircraft has been assigned to the De Havilland Aircraft, Ltd., Downview, Ont., Canada.

Twenty-five companies were invited early in May to submit quotations for the new tactical support. Initial procurement will involve four test aircraft under a cost-sharing plan with Canada. The U.S. Army's contribution to the development program is expected to cost about $7 million.

The De Havilland proposal for a Caribou II, evolved from the Army's currently operational AC-1 Caribou, provides for an enlarged fuselage and turbine engine power. The aircraft will be powered by two turbo-prop engines and its payload will be in the 3- to 5-ton range.

The new transport is being developed with improved characteristics over the Army's operational STOL Caribou transport. While the Caribou has been extremely successful, it was purchased as a readily available aircraft. It was not sized specifically to accommodate such Army loads as the Pershing missile system, the 105 mm. howitzer, and the ¾-ton truck.

The Caribou II will carry any of these in that its cargo compartment is compatible with the Army's Chinook cargo helicopter, which was specifically configured to carry these tactical loads. Army officials said it will fill its operational requirements under rugged battle conditions in any area of the world.

The present Caribou is the last tactical aircraft being procured with reciprocating engines as the Army has been converting to turbine engines to permit use of one common aviation fuel instead of the several types now handled.

One of 18 U.S. Army Caribou aircraft sent to bolster mobility of Joint Task Force 116 in Thailand refuels en route recent historic 11,000-mile flight from Fort Benning, Ga., to Korat, Thailand. The aircraft carried 1st Aviation Co.

Canadian Officers Reassigned

Maj Donald G. McClellan, a Canadian Army career officer, recently assumed the duties of Canadian Liaison Officer to the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va. He succeeds Lt Col H. W. Ball, who was given a new assignment in Edmonton, Alberta, Canada. Maj McClellan came to the Laboratories from Ottawa, Ontario, where he had served in the Office of Chief Engineer, Army Headquarters, since 1958.

Army Research Office Links Life Sciences Research with FASEB

The Life Sciences Research Office of the Federation of American Societies for Experimental Biology (FASEB) is now linked to the analysis and evaluation capability of the U.S. Army Research Office.

Negotiation of an introductory contract with FASEB, announced recently, is in furtherance of the U.S. Army Research Office policy of broadening the base of scientific and technical assistance and cooperation wherever the potential is promising.

Dr. Wendell H. Griffith, formerly Professor of Biochemistry at the Medical Center, University of California at Los Angeles, was appointed Director of FASEB Life Sciences Research Office early this month.

Rated nationally as one of the largest organizations of medically and biologically oriented scientists in the United States, FASEB is a nonprofit scientific and educational corporation headquartered in Bethesda, Md.

Under terms of the contract, FASEB will assist the Life Sciences Division of the U.S. Army Research Office in appraising problems of military significance, as directed by the Chief of Research and Development.

Within the scope of FASEB aid to the Army Research Office are:

- Toxicology in general, and pharmacology of military chemicals having adverse effects on man.
- Infectious diseases; epidemiology.
- Environmental and stress biology.
- Radiation biology; radiation protection.
- Nutritional physiology and biochemistry; military feeding; population emergency feeding.
- Applied microbiology, biophysics, and physical anthropology.
- Neurophysiology, neuro- and psycho-pharmacology; related areas.

Resources of the FASEB include 6,500 members of its six affiliated societies, and members must have a minimum of three years of post-doctoral research achievement. Actual representation in the FASEB extends to about 15,000 scientists in its field of direct interest. FASEB also maintains a register of some 20,000 professional biologists.

Member societies of the corporation are: American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics, American Society for Experimental Pathology, American Institute of Nutrition, and American Association for Immunologists.

The FASEB also maintains close relations with and serves as the collecting agency for the National Science Foundation in compiling the National Register of Scientific Personnel for the following: American Society of Anatomists, American Society of Microbiology, Society of General Physiologists, Society for Experimental Biology and Medicine, the Endoctrine Society, and the Biophysical Society.

Through its member societies and its personnel records of nonmember societies, the FASEB has the capability of engaging recognized experts for advisory, consultative and evaluative services to almost any extent desired, an Army official said.

Wild Phototheodolite Added to WSMR Trackers

Equipment being installed at White Sands Missile Range will help pinpoint satellites traveling 18,000 miles per hour hundreds of miles up within inches of their exact positions.

The new ballistic camera system is to be a powerful aid to the precision optical and electronic systems that gather data on 2,000 missile tests each year.

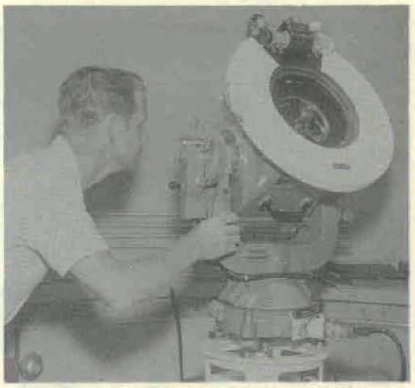
Heart of the system is the Wild BC-4 phototheodolite, developed by Wild-Heerbrugg, Ltd., in Heerbrugg, Switzerland. Eight of the Phototheodolites are to be installed this year over the 4,000-square-mile range.

The BC-4 has proved successful in continual use at Atlantic Missile Range. What is new are the modifications being made for its role at White Sands, a sister national range of AMR. Example:

- The camera is equipped with a tracking focal plane curtain system called a sky-screen, the aperture slits of which move to permit a series of different images to be formed on the camera's single glass plate.
- Operation of the camera is rendered automatic by a synchronization and control system which puts the camera through its paces with tape-recorded signals prepared prior to the mission.

A spokesman for the Special Instrumentation Section of the Integrated Range Mission Measurements Division at White Sands, which contracted for the systems, summarized these and other new features by saying:

"The BC-4 ballistic camera system to be installed at White Sands represents the integration of years of work in the study, development, and fabrication of precision photogrammetric equipment, and the operational experience gained on less elegant instruments in the past."



Electronic technician Glenn Shaw readies a Wild BC-4 phototheodolite for tracking operation at WSMR.

HFE Conference Slated Oct. 16-19, Ft. Benning

Military and industrial leaders concerned with man-machine compatability requirements for combat materiel will gather about 250 strong at the U.S. Army Human Factors Engineering Conference, Oct. 16-19, Fort Benning, Ga.

Lt Gen John P. Daley, who heads the newly organized Combat Developments Command, will be the keynote speaker. Theme of the conference, as decided by the Army Human Factors Engineering Committee responsible for the program, is "Infantryman—Invincibility on the Battlefield."

The U.S. Continental Army Command is host to the conference, the eighth in the series of annual gatherings sponsored by the Office of the Chief of Research and Development, Department of the Army. Preparations are being handled through the U.S. Army Research Office Human Factors Research Division.

Purpose of the meeting is to facilitate and improve interchange of information on requirements, accomplishments and future plans among Army agencies and Army contractors concerned with human engineering.

In recent years the U.S. Army has intensified efforts to enlist the support of industrial leaders and designers in considering utilization and maintenance factors of combat materiel. Accordingly, nearly one-third of the attendees at the eighth HFE Conference are expected to represent industry.

HumRRO Picks McFann to Succeed Valance as Deputy Director

Dr. Howard H. McFann has been named to succeed Dr. Theodore R. Vallance as Deputy Director for Program Development, Human Resources Research Office (HumRRO), George Washington University, Washington, D.C. Dr. Vallance was recently appointed Director of the Special Operations Research Office (SORO), American University, Washington.

Announcement of Dr. McFann's selection was made jointly by Lt Gen Dwight E. Beach, Army Chief of Research and Development and Dr. Thomas H. Carroll, President of GWU. (HumRRO operates under an Army contract).

Fresh from service as Director of Research, U.S. Army Leadership Human Research Unit, Presidio of Monterey, Calif., Dr. McFann will be a member of the staff of Dr. Meredith P. Crawford, HumRRO Director for the past 11 years.

Stepping into the spot vacated by Dr. McFann is Dr. John E. Taylor, who has served as Deputy Director.

Born in Montpelier, Ohio, Aug. 16, 1923, Dr. McFann was graduated from the University of Indiana with a B.A. degree in 1948, from Oberlin College, Oberlin, Ohio, with an M.A. degree in 1950, and from the University of Iowa with a Ph. D. in 1952. At Iowa he was an instructor and research associate in psychology.

Dr. Howard H. McFann

Dr. John E. Taylor

In June 1952, he joined the staff of the Motivation, Morale and Leadership Division, HumRRO, in Washington, D.C., and in 1953 became a member of the original staff of the U.S. Army Infantry Human Research Unit, Fort Benning, Ga.

Appointed Director of Research, U.S. Army Armor Human Research Unit at Fort Knox, Ky., in 1956, he transferred two years later to the post he held at the Army Leadership HRU at Monterey until he accepted his present position.

Dr. McFann is a member of the Sigma Xi scientific fraternity, the American Association for the Advancement of Science, and the Psychonomic Society. He is a Fellow of the American Psychological Assn.

DR. JOHN E. TAYLOR takes into his duties as Dr. McFann's successor a similar record of military service in uniform followed by a career as an Army civilian scientist, having served with HumRRO units since 1954.

Honorably discharged from the U.S. Marine Corps in 1946, he enrolled at Pennsylvania State University and obtained a B.S. degree in 1949, followed by an M.A. degree from Bowling Green University, Bowling Green, Ohio, in 1950 and a Ph. D. from the State University of Iowa, Iowa City, in 1953. At Bowling Green he was an instructor in psychology and at Iowa State was a research associate in 1953-54.

After serving five years on the staff of the U.S. Army Infantry Human Research Unit at Fort Benning, he was transferred to the assignment that set the stage for his new post.

Dr. Taylor is a member of the American Psychological Association, the Western Psychological Association, the Midwestern Psychological Association, the American Association for the Advancement of Science, Sigma Xi, and Psychonomic Society.

CSC Confirms Kaprelian as Limited War Lab Chief

Selection of Edward F. Kaprelian as Technical Director of the U.S. Army Limited War Laboratory, a PL-313 position, was confirmed by the U.S. Civil Service Commission effective July 20.

Actually, Mr. Kaprelian took over his duties with the activation of the Limited War Laboratory on June 15. He served on a loan basis from his duties as Assistant Director of Research at the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J.

Until attracted to the challenge of his duties with the Signal R&D Laboratory, he was president of the Kaprelian Research and Development Co. from 1955 to 1957. He was Director, Squier Laboratory, USAERDL from 1946 to 1952, and Director of Research and Engineering of the Kalert Co. from 1952 to 1955.

A graduate of Stevens Institute of Technology, with a degree in mechanical engineering, he studied law and physics at George Washington University in Washington, D.C., and was a guest lecturer at Columbia University.

Creative abilities of Mr. Kaprelian are indicated by 14 patents for inventions, plus 14 patent applications pending in the U.S. and seven pending in Great Britain, Germany and Japan.

A former president and director of the Society of Photographic Scientists and Engineers, he is a Fellow of the Physical Society of London.

Memberships in other professional organizations include: National Research Council, National Academy of Sciences; American Society of Mechanical Engineers; Optical Society of America; Society of Motion Picture and Television Engineers; Patent Office Society; Institute of Radio Engineers; and Sigma Xi, an honorary scientific society.

Edward F. Kaprelian

Director of SORO Announces Retirement, Successor Named

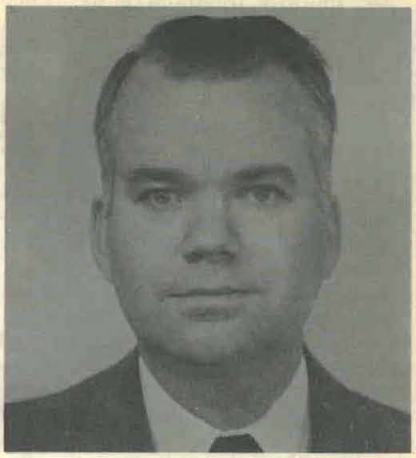
Retirement of Col Kai E. Rasmussen as Director of the Special Operations Research Office (SORO), American University, effective Sept. 30, will install Dr. Theodore R. Vallance as his successor. Dr. Vallance is now Deputy Director, Human Resources Research Office, George Washington University. Both agencies operate under Army contracts.

SORO conducts research and special studies in support of the Army's special warfare functions. Areas of interest include oral and visual communications, guerrilla and counter-insurgency operations and the sociological, political, economic and military background of foreign areas.

Col Rasmussen has been Director of SORO since he retired from the Army in 1955. A native of Denmark, he moved to the U.S. in 1922, enlisted in the Army, and won appointment to the Military Academy, graduating in 1929.

Following area and language study in Japan from 1936 to 1940, he was Commandant of the Army Language School for six years. Other assignments: Military Attache, Oslo, Norway (1946-49); Commanding Officer, 500th Military Intelligence Group, Tokyo, Japan (1950-53); Assistant Chief of Staff, Intelligence, Army Forces, Far East, Tokyo (1953); and Office, Deputy Chief of Staff for Intelligence, Department of the Army, Washington, D.C. (1953-55).

Col Kai E. Rasmussen



Dr. Theodore R. Vallance

DR. VALLANCE, a native of Columbus, Ohio, joined HumRRO in 1954 as Director of Research of the U.S. Army Armor Human Research Unit, Fort Knox, Ky., and in 1958 moved to his present position in Washington, D.C. He holds a B.A. degree from Miami University, Oxford, Ohio (1940) and M.A. and Ph. D. degrees (1941 and 1950) from Syracuse University, Syracuse, N.Y.

In 1946 he served in the U.S. Air Force as an instructor in psychology at Miami University. From 1948 to 1954 he was assistant and associate professor of psychology at the University of Massachusetts, Amherst.

Top R&D Leaders Discuss Programs, Objectives at 5th Annual USAR Parley

Three high-ranking Army research and development leaders contributed to the understanding of Army R&D objectives as featured speakers at the Fifth Annual R&D Seminar for Reserve Officers at Fort Belvoir, Va., July 30-Aug. 14.

Director of Army Research Maj Gen C. W. Clark discussed "Army Research and Development," Army Materiel Command Director of R&D Maj Gen F. H. Britton spoke on R&D in the AMC, and Maj Gen A. K. Sibley explained the mission of his Army Mobility Command.

Forty-six Reserve Officers from 16 states attended the 2-week seminar, held at the U.S. Army Engineer Research and Development Laboratories (USAERDL) under sponsorship of Mobilization Designation Detachment No. 39 at the Laboratories.

Representatives from various branches of USAERDL discussed projects underway to provide Army with equipment for modern war.

Participants visited the Army Map Service and the Beach Erosion Board and were briefed on the work of the U.S. Army Engineer Geodesy, Intelligence, and Mapping Research and Development Agency.

Nuclear Seminar Draws Armed Forces Reservists

R&D Reserve Unit officers from all the Armed Forces participated in the U.S. Army Nuclear Science Seminar in Oak Ridge, Tenn., July 29-Aug. 10.

Arranged by the 3252nd Reserve Research and Development Unit at Oak Ridge, the Seminar was sponsored by the Chief of Research and Development, Lt Gen Dwight E. Beach, whose message of welcome appeared in the program.

Assisting agencies included U.S. Atomic Energy Commission, Oak Ridge National Laboratory for the Union Carbide Nuclear Co., Oak Ridge Institute of Nuclear Studies, and University of Tennessee-AEC Laboratory.

Lectures and demonstrations were presented on all facets of nuclear research, ranging from experimental reactors to radiology, by representatives of the assisting organizations.

Director of Army Research Maj Gen C. W. Clark discussed the Army's basic research program in the featured address, and Mayor R. A. McNees of Oak Ridge welcomed the conferees.

Other leading speakers were Col W. C. Gribble, U.S. Army Corps of Engineers, who discussed nuclear reactor development based on his knowledge as Chief of the Army Nuclear Power Program, and Col H. M. Roth, Seminar director and Commanding Officer of the 3252nd USAR R&D Unit.

TEA Denotes New Agency For Transportation Chief

The Transportation Engineering Agency (TEA) is the new name of the Engineering Office of the Transportation Research Command (USATRECOM).

Still located at Fort Eustis, Va., the redesignated agency will report directly to the Chief of Transportation in Washington, D.C. Lt Col Robert W. Wildey retains command and L. J. Pursifull stays on the job as TEA's Deputy Director.

Unaffected by the redesignation are the existing engineering staff of 24 military and 55 civilian personnel. All support equipment and facilities, likewise, are transferred to TEA.

The agency has the mission of providing the Chief of Transportation with the necessary evaluation, testing, traffic engineering, transportation surveys, and transportability support to implement the transportation engineering program.

USAPRO Tabs Bersh to Head Combat Systems Lab

Dr. Philip J. Bersh recently joined the professional staff of the U.S. Army Personnel Research Office (USAPRO) as Chief of the Combat Systems Research Laboratory.

The CSRL is one of four USAPRO laboratories under the jurisdiction of the Chief of Research and Development conducting research in the areas of military selection, behavioral evaluation, combat systems and support systems.

Dr. Bersh, a supervisory research psychologist, is responsible for organizing, directing, coordinating and facilitating the implementation of an Army-wide program of scientific research related to human factors in combat systems. He will work closely with task leaders on the Future Combat and Monitor Performance Tasks.

Until recently, Dr. Bersh was with the Rome Air Development Center, Griffis Air Force Base, Rome, N.Y., as Chief, Intelligence and Electronic Warfare Branch of the Human Engineering Laboratory. His duties involved psychological and human engineering support to the Intelligence and Electronic Warfare Directorate, consisting of the Intelligence Laboratory, Electronic Warfare Laboratory and the Quick Reaction Capability Laboratory.

Majoring in experimental psychology, Dr. Bersh received his B.A. degree from Temple University, Philadelphia, Pa. in 1944 and his M.A. and Ph. D. degrees from Columbia University, New York, N.Y., in 1947 and 1949. Immediately after obtaining his Ph. D. degree he was a Post Doctoral Fellow of the National Research Council.

At Columbia University, the Graduate School of the University of Wisconsin, Hamilton College and Utica College, he taught statistics, design of experiments, principles of behavior, sensation and perception, and tests and measurements.

As a lecturer, author and research psychologist, Dr. Bersh has achieved recognition in the field of experimental psychology. His work has centered on the interaction of autonomic and motor responses during avoidance conditioning, heart-rate conditioning in human subjects during experimental anxiety, and the effects of stress upon motor performance.

Dr. Bersh is a Fellow of the Division of Experimental Psychology of the American Psychological Association and the American Association for the Advancement of Science, and a member of the Psychonomic Society and Sigma Xi.

Dr. Philip J. Bersh

HEL Study Evaluates 'Copters as Assault Weapon

The ability of military personnel to detect, identify and estimate slant range to typical ground targets from low-flying helicopters is the basis of a study conducted by the U.S. Army Human Engineering Laboratories (HEL), Aberdeen Proving Ground.

The question motivating the study is the value of using armed helicopters when, due to time or terrain, conventional artillery weapons cannot be directed on enemy targets.

Relatively slow speed and absence of protective armament requires the helicopter to resort to "nap-of-the-earth" and contour flight for survival's sake. This in turn provides it with the element of surprise and the ability to hide.

HEL's helicopter armament research program is designed to gather data to determine combat effectiveness of such a flight mode.

Conducted at the Combat Development and Equipment Command, Hunter-Liggett Military Reservation, Calif., the study used a test region eight kilometer square, subdivided into nine equal squares. Five types of targets, ranging from a M-48 tank to a machinegun, were used.

The experimental subjects, 32 rated pilots with training and/or experience in aerial observation, were flown over the area at low altitude and required to record details observed. Their accuracy was measured and results later analyzed.

Tables of probabilities of detection, probabilities of correct identification, and the ranges at which target type was most often detected are presented in a published report, HEL Technical Memorandum No. 1-62.

"Scorpion" 90 mm. antitank gun hides from view of low-flying helicopters in HEL's aerial observation study.

Guide Provides Criteria On Human Factors to Aid Designers of Vehicles

The U.S. Army Human Engineering Laboratories (HEL), Aberdeen Proving Ground, Md., recently published and distributed a human factors design guide to vehicle designers.

The guide contains itemized criteria in a great many human factors areas such as types and sizes of controls, displays, noise levels, vibration levels, temperature and ventilation norms, accessibility requirements for ease of maintenance, packaging of components for ease of maintenance, etc.

Information and criteria in the guide are intended to be used in preparing research and development contracts, procurement directives, and in the preparation of test and evaluation programs.

Since no previous human factors guide to Army vehicle designers existed, and the appropriate data was scattered throughout a large number of documents, it was felt that all such information should be compiled into one publication.

Many charts and graphs used in this guide present appropriate data. A wide degree of interest has been created by the U.S. Continental Army Command, industry and Army design agencies in the publication, and it is planned that similar human factors guides will be published by the HEL in other commodity areas.

For further information and detailed vehicle design specifications, interested readers may obtain a copy by writing to the U.S. Army Human Engineering Laboratories, Aberdeen Proving Ground, Md., requesting a copy of Technical Memorandum 21-61, titled "Manual of Standard Practice for Human Factors in Military Vehicle Design."

USAEPG Employee Wins Meritorious Award For Aerial Laying of Communication Lines

A retired U.S. Army major employed as a civilian at the U.S. Army Electronic Proving Ground, Fort Huachuca, Ariz., has been instrumental in an important advance in field communications. For this accomplishment, he has been presented a Meritorious Civilian Service award by Maj Gen F. F. Uhrhane, USAEPG Commanding General.

David C. Buscall, Jr., while assigned as a Task Manager, developed a system of laying field wire from helicopters without wire breakage. His invention will make available to field commanders a system for air-laying wire communication circuits at high speeds.

The first significant requirements to lay communication wire lines from military aircraft developed during World War II, when demands to lay wire rapidly over impassable terrain could not be satisfied by conventional methods.

During and since World War II, several methods for laying wire from aircraft were evolved and as many field expedient systems devised. All of these systems had serious deficiencies in which approximately 60 percent of the lines were broken, requiring several reruns to install one good circuit. Lines were also limited to about three miles in length.

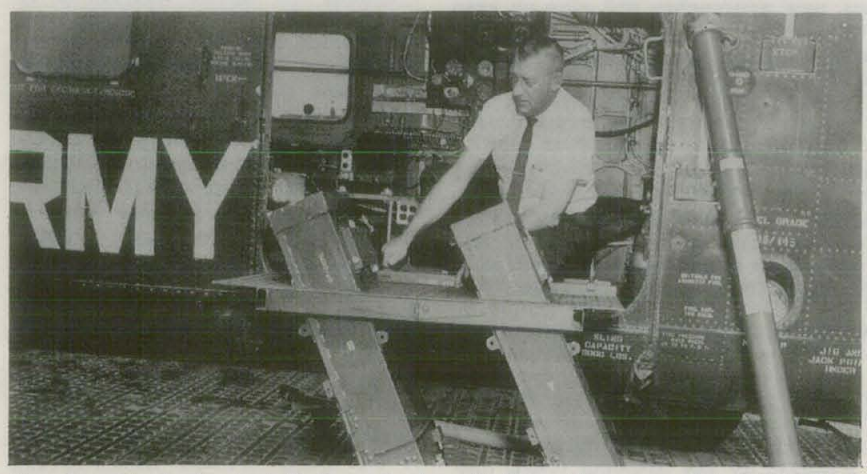
Since only the smallest helicopters and airplanes could be used, these systems were inadequate to satisfy the modern Army's need. In May 1957, the Chief Signal Officer directed action to solve this problem.

The USAEPG Signal Communications Department received the project in November 1957. Mr. Buscall, who had been serving in the Signal Communications Department in military and civilian capacities since December 1954, was assigned as Task Manager, and was responsible for development of the Aircraft Field Wire Dispenser Set AN/ATE-1 and its associated techniques.

David C. Buscall receives Army Decoration for Meritorious Civilian Service from Maj Gen F. F. Uhrhane, CG.

In August 1960, a patent in Buscall's name was filed in the U.S. Patent Office by the Chief Signal Officer. Buscall assigned all rights to the U.S. Government.

This equipment is on the list for standardization among Armies of the United States, United Kingdom and Canada. The U.S. Marine Corps has requested an AN/ATE-1 dispenser to undergo test for possible use. It is estimated that adoption of this equipment by all combat units could result in a saving to the Government of more than $1,000,000 a year.



Mr. Buscall checks installation of aircraft Wire Dispenser Set AN/ATE–1, which he designed for the USAEPG, aboard H–34 helicopter prior to testing.

SCIENTIFIC CALENDAR

International Congress of Mathematicians, Stockholm, Sweden, Aug. 15-22.

Seminar on Communications Technology, San Diego, Calif., Aug. 16-18.

8th International Congress on Microbiology, sponsored by the International Association of Microbiolgical Societies, Montreal, Canada, Aug. 19-25.

6th International Congress of International Commission for Optics, Munich, Germany, Aug. 19-26.

Conference on Science & Engineering in Nuclear Education, Gatlinburg, Tenn., Aug. 20-22.

Symposium on the Problems of Gyroscopy, Celerina, Switzerland, Aug. 20-23.

Meeting of the Special Committee on Antarctic Research, sponsored by the International Council of Scientific Unions, Boulder, Colo., Aug. 20-24.

15th International Congress of Limnology, sponsored by the International Association of Theoretical & Applied Limnology, Madison, Wis., Aug. 20-25.

International Seminar on Hydraulics and Fluid Mechanics, Santiago, Chile, Aug. 20-25.

International Conference on Fracture in Crystalline Solids, Maple Valley, Washington, Aug. 21-24.

Symposium on Far Infrared Spectroscopy, sponsored by AFOSR, Cincinnati, Aug. 21-24.

3rd International Symposium on X-Ray Optics & X-Ray Microanalysis, sponsored by the International Union of Pure & Applied Physics, Stanford, Calif., Aug. 22-24.

Conference on Thin Films, Denver, Colo., Aug. 23-24.

International Symposium on Environmental Control of Plant Growth, sponsored by the International Union of Biological Sciences, Canberra, Australia, Aug. 25-31.

International Congress on Radiology, Montreal, Canada, Aug. 26-Sept. 1.

Conference on Metallurgy of Semiconductor Materials, Philadelphia, Pa., Aug. 27-29.

International Symposium on Space Technology and Science, Tokyo, Japan, Aug. 27-31.

4th Symposium on Naval Hydrodynamics, sponsored by ONR, Washington, D.C., Aug. 27-31.

3rd International Council of the Aeronautical Sciences, Stockholm, Sweden, Aug. 27-Sept. 1.

9th International Symposium on Combustion, Ithaca, N.Y., Aug. 27-Sept. 1.

Symposium on Environmental Physiology and Psychology in Arid Conditions, Naini Tal, India, Aug. 27-Sept. 1.

International Symposium on Quantum Chemistry and Solid-State Physics, Rattvik, Dalarna, Sweden, Aug. 27-Sept. 1.

2nd International Symposium on the Chemistry of Natural Products, sponsored by the International Union of Pure & Applied Chemistry, Prague, Czechoslovakia, Aug. 27-Sept. 2.

5th International Congress for Electron Microscopy, sponsored by the Electron Microscope Society of America, NIH, NSF, ONR, AEC, ARO and AFOSR, Philadelphia, Aug. 29-Sept. 5.

Conference on Analytic Functions, sponsored by the Institute of Mathematics of Polish Academy of Sciences, Krakow, Poland, Aug. 30-Sept. 4.

Optimum Control System Synthesis Conference, Wright-Patterson AFB, Ohio, Aug. (date undetermined).

Interdisciplinary Conference on Electromagetic Scattering, sponsored by AFOSR and AFCRL, Potsdam, N.Y., (date undetermined).

International Symposium on Information Theory, sponsored by IRE, Professional Group on Information Theory, Benelux Section and Belgian Societies, Brussels, Belgium, Sept. 2-7.

Symposium on Antarctic Biology, sponsored by the Special Committee on Antarctic Research & French Academy of Sciences, Paris, France, Sept. 3-7.

RAC Appoints Slagle as Operations Analyst

Appointment of Robert O. Slagle to the professional staff of the Research Analysis Corporation as an operations analyst has been announced by RAC President Frank A. Parker, Jr.

As a private, nonprofit organization, RAC applies operations research and systems analysis techniques to the study of global military problems and related political, social and economic questions.

Mr. Slagle brings 10 years of military intelligence experience with the U.S. Air Force to his post in RAC's Combat Systems Division. Prior to joining RAC he was a military intelligence research specialist at the Air Force Intelligence Center in Arlington, Va.

A graduate of Suffolk University, Boston, Mass., he holds an M.A. degree from Boston University and is a Ph. D. candidate in military history at the American University, Washington, D.C.

Robert O. Slagle

Theme of the Month: Management to Cut Lead Time

(Continued from page 2)

which planning and direction come from my Headquarters located in Washington, D.C. There are seven subordinate commands, each headed by a General Officer who will have the responsibility for solving all the problems that arise in his particular area. . . . Five of these commands are oriented toward hardware. The orientation is in line with the traditional job of the Army to: Move, shoot, communicate. . . .

Now what are we going to do with this new organization? Probably our major objective is to reduce the time it takes to get a good idea translated into equipment in the hands of soldiers in the field. In the past it has generally taken at least seven years to turn an idea into hardware. Our target is four years.

We also plan to make it easier for a good idea to get proper attention. Many manufacturers have long complained that it was impossible to find the right man to talk to in the old Army setup. Finding the right man should now be simpler, because responsibility for doctrine is centralized in the Combat Development Command and responsibility for hardware is centralized in the Army Materiel Command.

We intend to emphasize research—help push back the frontier of knowledge so that new materials, new processes, new approaches will give us ever better weapons for the Army of the Future.

We intend to strengthen our bonds with industry, for the major strength of our production and technological capability is in civilian industry. Of course, the Army Arsenal System is an essential partner with industry and bridges the gap between the soldier and industry. But private industry does provide—and properly so—a base of our development and production effort.

Now just what does this new reorganization mean to people like you out in the field—away from Washington—people who actually do the work?

Really, you will not notice much difference. The main changes are taking place between the operating agencies in the field and the Department of Defense in Washington. . . . It is true that operations in the field are practically unchanged. Your work here should, however, be facilitated because there are fewer overhead layers between you and the basic decision-making people in Washington. You should be able to get quicker, cleaner decisions so that you can get your job done better and faster. It is my job to see that you get the support you need.

. . . As we go about our business of seeing that our Army gets the best weapons this country can produce, let's never lose our sense of urgency. Remember always that one weapon in the field is worth a hundred on the drawing board. It's our job to get the weapons off the drawing board and into the field. Let's get on with that job, to the end that our country remains free and our childrens' future secure.

Project BATON Probes Thunderstorm Origins To Improve Forecasts

Analysis of the life history of thunderstorms is the objective of Project BATON, a Department of Defense research activity in which a well-known Army scientist is prominent.

Dr. Helmut Weickmann, who has distinguished himself in numerous meteorological research projects as an employee of the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J., and Dr. Paul McReady of Meteorology Research, Inc., are joint leaders of the Project BATON team.

Supported by the Advanced Research Project Agency, the project seeks to expand understanding of storm physics as an aid to weather forecasting, fire prevention, and, possibly, for artifically controlling the weather — the latter admittedly a gleam in scientists' eyes at this time.

Current experiments are not aimed at causing rain or modifying storm clouds. Rather, by causing minor structural changes in clouds over a region in central Arizona, without measurably altering the storm's later evolution, researchers are attempting to learn how isolated thunderstorms develop, and the relationship between development and lightning formation.

During the storm season which started in July and continues into this month at Flagstaff, Ariz., the scientists, selecting "guinea pig" storms, are seeding them with chemicals.

Effects are being thoroughly analyzed from the ground and from the air with time-lapse motion picture cameras, stereo still cameras, storm radar, lightning detectors, and airborne heat sensors.

Among the agents inserted in selected clouds are "condensation nuclei" which temporarily increase the number of water droplets in the cloud, and pulverized dry ice, which turns a portion of the cloud to fine snow crystals that remain aloft. The utilization of these agents facilitates study of the storm's characteristics.

An attempt also is being made to inhibit lightning discharges, a major cause of fire in the Flagstaff area, by experimental seeding techniques.

Assigned to Medical Command

Maj Forest L. Neal, MSC, who has just been awarded his masters degree in packaging technology from Michigan State University, has been assigned to the Development Division of the Army Medical Research and Development Command. He is an Army Packaging Board member.

2 USAERDL Employees Win Meritorious Service Awards

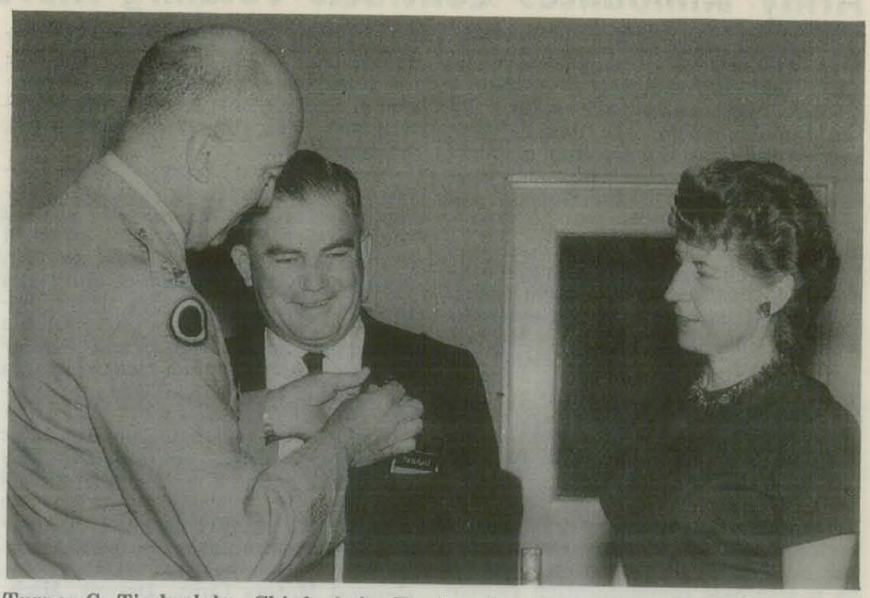
The Department of the Army Meritorious Civilian Service Award was presented recently to two employees of the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.

O. P. Cleaver and T. G. Timberlake were recipients of the Army's second highest award to civilian employees which includes a certificate and a medal. Col John H. Kerkering, Director of the Laboratories, made the presentations.

Mr. Cleaver was recognized for service as Chief of the Electrical Department, while Mr. Timberlake was honored for his work as Chief of the Engineering Department.

The citation accompanying Cleaver's medal stated, in part: "By his exceptional initiative, perseverance, and ability in the electrical and electronic fields and his many contributions to the management of the Electrical Department and the U.S. Army Engineer Research and Development Laboratories and outstanding devotion to duty, he has personified those high qualities most desirable in a civil servant and has acted in the best interests of the Corps of Engineers and the U.S. Army."

Mr. Timberlake was cited for "meritorious service in planning, staffing and supervising the new Engineering Department" . . . "requiring the introduction of concepts of operations and responsibilities entirely new to the Corps of Engineers to ensure sufficient transition of new equipment from development to production. Difficulties in revising entrenched policy and operational concepts, implementing an increased Engineering mission, and recruiting experienced engineers from industry in spite of salary disadvantages, were effectively overcome by Mr. Timberlake's clear identification of objectives and his dedicated personal drive, enthusiasm and leadership."



Turner G. Timberlake, Chief of the Engineering Department, U.S. Army Engineer Research and Development Laboratories, is presented the Meritorious Civilian Service Award, in presence of his wife, by Col John H. Kerkering.

Cleaver, who holds the rank of colonel in the Army Reserve, has been with the Laboratories in a military and civilian capacity since 1942. A graduate of Georgia Institute of Technology with a master's from Yale University, he is a member of the Illuminating Engineering Society, American Institute of Electrical Engineers, Society of American Military Engineers, Washington Academy of Sciences, Sigma Xi, Phi Kapa Phi, and Tau Beta Pi. He is listed in *Who's Who in Science, American Men of Science*, and *Leaders in American Science*.

Timberlake came to the Laboratories in 1956 after being employed for a number of years at the Engineer Maintenance Center, Columbus, Ohio. A lieutenant colonel in the Army Reserve, he served on active duty from 1941 to 1945 and again from 1951 to 1954. He was the recipient of a Westinghouse National Scholarship in 1937 and attended the University of Maryland, where he received a B.S. degree in mechanical engineering.

A member of the Society of American Military Engineers and the National Society of Professional Engineers, he is listed in *Who's Who in Engineering*. In 1959, he was the recipient of a Secretary of the Army Research and Study Fellowship.

Oscar P. Cleaver

Army Establishes Intelligence-Security Branch

The Army recently established an Intelligence and Security Branch as a new basic branch for Army personnel. Action is being taken to select appropriate branch insignia.

Addition of the new basic branch, the first since 1950 when the Military Police and Transportation branches were added, will insure continuous availability of officers highly qualified in the intelligence and security field. That brings to 20 the number of branches in the Army.

Substantial reduction and eventual elimination is expected of the present requirement for officers from other Army branches to perform duties in intelligence and security units.

The new branch controls approximately 5,000 officers serving in a wide variety of intelligence and security functions throughout the world, such as the Army Security Agency, the Intelligence Corps, U.S. Army, and other combat and strategic intelligence functions.

For the first time these officers will be brought together under a single career management authority. Benefits will include improved personnel control, improved career management and career development for the officers involved, and improved intelligence for the Army.

Army Announces Contracts Totaling More Than $340 Million

Contracts aggregating more than $340 million for research, development and procurement of military materiel were announced recently by the Department of the Army. The large total and the number of multiple awards resulted from the rush to obligate funds by the close of the fiscal year.

Diamond T Motor Corp., Chicago, Ill., received the largest single contract, $47,610,153, for 4,380 5-ton trucks. Three contracts totaling $26,846,112 were let to Willys Motors, Inc., Toledo, Ohio, for 632 diesel engine trucks, 12,567 ¼-ton utility trucks and repair parts.

Western Electric Co., New York, N.Y., received nine contracts totaling $24,793,880 for continued research and development work on the Nike Zeus missile program, production of materiel and engineering services for the Nike Hercules program, a study on a strategic communication switching system, and a classified contract.

Four awards totaling $20,450,861 went to Sperry Rand Corp., Salt Lake City, Utah, and New York City for ammunition and equipment for the Sergeant missile system. A $14 million classified contract was granted to Sylvania Electronics Systems East, Needham, Mass.

Raytheon Co., Lexington, Mass., received four contracts totaling $11,722,294 for Hawk missile system equipment. Five contracts awarded to Chrysler Motors Corp., Detroit, Mich., call for production of 961 cargo trucks, 341 1-ton trucks, truck engines, engines and spare parts for the M113 personnel carrier, and Jupiter missile training equipment for the Army Missile School, Redstone Arsenel, Ala.

For production of transmissions for recovery vehicles, engines for M59 personnel carriers and self-propelled mortars, 145 transmissions for the 8-inch self-propelled howitzer and engines and spare parts for the 155 mm. and 175 mm. self-propelled howitzers, General Motors Corp., Detroit, Mich., and its Allison Division, Indianapolis, Ind., received six contracts totaling $10,812,759.

Motorola Inc., Scottsdale, Ariz., was awarded two contracts totaling $10,803,940 for radar surveillance systems. Three contracts totaling $10,132,723 let to Continental Motors Corp., Muskegon, Mich., are for truck engines, repair parts for the M48A3 tank and engines and spare parts for M88 recovery vehicles.

A $9,443,634 classified contract was let to Minneapolis Honeywell Regulator Co., Hopkins, Minn. Aerojet General Corp., Downey, Calif., received two contracts totaling $9,330,256 for ammunition and drones.

Three contracts totaling $8,940,455 awarded to Ford Motor Co., Detroit, Mich., call for production of 2,296 cargo pickup trucks, 1,932 light 4-door sedans and 954 buses.

RCA, Camden, N.J., received four contracts totaling $8,740,292 for radio equipment, a field data computer system, work on the TRADEX (Target Resolution Discrimination Experiment) Program and an automatic test system capable of testing all types of Army Signal Corps electronic equipment. Mack Trucks, Inc., received a $8,470,332 contract for engines and accessories for use on 5-ton trucks.

Five contracts let to International Harvester, Washington, D.C., involve production of 598 utility trucks, 314 dump trucks, 239 tractors and conversion of 227 passenger buses to ambulances.

Three contracts totaling $5,418,000 let to Bendix Corp., Teterboro, N.J., are for three mobile ground stations for Project SYNCOM and guidance and control components for the Pershing missile system.

Martin Co., Orlando, Fla., received three contracts totaling $4,928,673 for engineering services and support and repair parts for the Lacrosse and Pershing missile systems.

A $4,490,691 contract let to Garwood Industries, Inc., Wayne, Mich., is for production of 163 truck mounted cranes. Kurz and Root Co., Appleton, Wis., received a $4,317,484 contract for gasoline-engine-driven generator sets.

Two contracts for ammunition totaling $4,101,005 went to Remington Arms Co., Inc., Bridgeport, Conn. Mine Safety Appliances Co., Pittsburgh, Pa., received a $3,932,000 contract for filter elements and repair parts for field protective masks.

Avco Corp., Richmond, Ind., received a $3,446,531 contract for ammuniton. Target missile flight services are called for in a $3,426,480 contract let to Northrup Corp., Van Nuys, Calif.

A $3,406,107 contract for tactical radio communication sets went to Collins Radio Co., Richardson, Tex. Southern Airways Co., Mineral Wells, Tex., received a $3,254,900 contract extending for one year the operation

Portable Sea-Water Distillation Unit Passes Test

Completion of a 1,000-hour joint engineer-service sea water test of a vapor compression distillation unit fabricated from aluminum has been announced.

The U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., said successful testing conditions reduced by one year the time that normally would be required if field tests had been run separately.

Personnel from USAERDL and from the U.S. Army Engineer Test Unit at Fort Belvoir conducted the joint tests last February and March at Daytona Beach, Fla.

During the continuous 1,000-hour test, the distillation unit produced approximately 145 gallons of potable water an hour from the Atlantic Ocean. Engineers said the equipment proved its economy by producing 150 pounds of water for each pound of gasoline used in its operation.

The distillation unit was developed by the Laboratories to provide troops with equipment that will be lighter, have greater capacity, improved transportability, and better fuel economy than equipment currently supplied troops for desalting sea water.

Trailer mounted, the unit features a vapor compression distillation process which conserves the latent heat of evaporation and, thereby, requires less fuel than any other distillation process developed at this time.

Mobile Sea Water Distillation Unit developed by USAERDL, Fort Belvoir, Va., shown undergoing 1,000-hour sea water tests at Daytona Beach, Fla.

of the Army Primary Helicopter School training and maintenance program at Camp Wolters in Mineral Wells.

Harvey Aluminum Sales, Inc., Torrance, Calif., was awarded a $3,273,409 classified contract. Two contracts totaling $3,009,000 went to General Electric Co., Utica, N.Y., for design and development of infrared equipment and work on the Little John rocket.

A $2,979,515 contract for telephone equipment and services went to Philco Corp., Fort Washington, Pa. Olin Mathieson Chemical Corp., East Alton, Ill., received two contracts totaling $2,836,544 for ammunition.

North American Aviation Co., Canoga Park, Calif., received a $2,692,003 contract for control and instrumentation equipment for three NASA F1 rocket engine test stands at Edwards Air Force Base, Calif.

Work on a tactical defense system which coordinates the fire of Nike and Hawk missile batteries is called for in a $2,665,150 contract let to Hughes Aircraft Co., Fullerton, Calif. Vulcan Trailer Manufacturing Co., Birmingham, Ala., was awarded a $2,513,041 contract for semi-trailers.

Pan American Airways, Inc., New York, N.Y., received a $2,500,000 contract for field test facilities designed to test advance space systems. A $2,183,877 contract awarded to General Instrument Corp., Chicopee, Mass., is for parts for electric fuzes.

St. Regis Paper Co., Houston, Tex., was given a $2,154,450 contract for burlap sand bags. A $2,145,369 contract for fuze parts went to Bulova Watch Co., Long Island, N.Y. Polan Industries, Huntington, W. Va., received two contracts totaling $2,054,344 for 2,160 mine detector sets, periscopes for the M-60 tank and personnel carriers.

Additional contracts included: John R. Hollingsworth Co., Phoenixville, Pa., $1,937,626 for generators; Zenith Radio Corp., Chicago, Ill., $1,781,521 for proximity fuzes; Temco, Inc., $1,758,610 for parts for 4.2-inch mortars; Spencer Saffard Loadcraft, Inc., $1,752,437 for 12-ton semi-trailers; Monmouth Electric Co., Neptune, N.J., $1,738,425 for portable electronic equipment for tactical ground field use; Caterpillar Tractor Co., Peoria, Ill., $1,691,083 for 141 full-tracked diesel-engine driven tractors; PRD Electronics, Inc., Brooklyn, N.Y., $1,594,500 for Nike missile field installation equipment; Day and Zimmerman, Inc., $1,569,735 for ammunition components; Ordnance Specialties, El Monte, Calif., $1,476,531 for reefing line cutters, used in connection with parachute drops; Ortronix, Inc., Orlando, Fla., $1,464,531 for lightweight transportable shelters designed to permit installation and housing of communications equipment;

General Dynamics Electronics, Rochester, N.Y., $1,145,367 for three field radio systems capable of installation in a jeep or truck; Hayes International Corp., Birmingham, Ala., $1,432,500 for Pershing missile trainer repair parts; Stewart and Stevenson Services, Inc., Houston, Tex., $1,393,737 for 250 generators; Armco Steel Corp., Torrance, Calif., $1,370,476 for tube forgings for the 175 mm. gun; Telephonics Corp., Huntington, Long Island, N.Y., $1,320,564 for headsets for microphone kits;

U.S. Rubber Tire Co., Detroit, Mich., $1,275,150 for 300 rolling liquid transporters; Massachusetts Institute of Technology, Cambridge, Mass., $1,200,000 for research in electronic and molecular physics and communications; FMC, San Jose, Calif., $1,087,450 for production engineering on the M113 armored personnel carrier; Douglas Aircraft Corp., Charlotte, N.C., $1,077,200 for Nike Hercules equipment; Ross Aviation, Inc., Tulsa, Okla., $1,061,296 to conduct primary flight training at the Army Aviation School, Fort Rucker, Ala.

Civil Service Journal Credits Service Inventors

U.S. Army inventors share in a fitting tribute for notable achievement in building the Nation's defenses and contributing to the general welfare of the civilian population in *The Civil Service Journal.*

The July-August edition of the official publication of the Civil Service Commission carries the introductory article of a series titled "Civil Service Inventors." Prepared by the Journal editors with assistance from Government agencies, the article was stimulated by the *Army Research and and Development Newsmagazine.*

Remember the Newsmagazine's series of three articles by Lt Col George F. Westerman titled "Patents Knowledge Viewed as Useful Tool for R&D Personnel," in the December 1961, January and February issues?

Among the many persons who were kind enough to call and offer congratulations on that series was the editor of the *Civil Service Journal.* As a followup, he suggested he would like to write about some of the more significant products of Government service inventors, and invited a little guidance.

Backed by an earlier article in the Newsmagazine on inventors who had shared in $25,000 awards under the Civilian Incentive Awards Program—and knowledge of others who had gained notable achievement awards for inventions—the editor was able to suggest Army and Navy personnel who could be considered as subjects for the Journal series.

Several of those who were suggested are cited in the first article:

• W. S. Hinman, Jr., Deputy Assistant Secretary of the Army for Research and Development, coinventor of the vitally important proximity fuze and inventor of numerous other devices while employed at the National Bureau of Standards and later at the Army's Diamond Ordnance Fuze Laboratories.

• Billy M. Horton, who succeeded Mr. Hinman as Technical Director at the Diamond Ordnance Fuze Laboratories, and gained renown for his creativeness in developing principles of pure fluid amplification controls.

• Dr. William B. McLean, Technical Director of the U.S. Naval Ordnance Test Station, winner of a $25,000 award for his conception and development work on the Navy's deadly Sidewinder missile. He holds 24 patents.

Others mentioned in the Journal article include:

• William J. O'Sullivan, who developed the ECHO I communications satellite while employed at the National Aeronautics and Space Administration's Langley Research Center, Hampton, Va.

• Dr. Everette L. May and Dr. Nathan B. Eddy, now employed at the National Institutes of Health, Bethesda, Md., codiscoverers of the dramatically potent pain killer, phenazocine.

• Dr. Allene R. Jeanes, now with the Department of Agriculture and formerly employed at the National Bureau of Standards and as a research Fellow at the National Institutes of Health. Acclaimed as the Nation's foremost woman chemist, she is cited for her work in perfecting dextran for blood plasma use.

Army's JSHS Program Loses Leader as Dr. Elvehjem Dies

With the death of Dr. Conrad Elvehjem late in July, the U.S. Army Junior Science and Humanities Symposium Program lost one of its devoted leaders, as recognized in a letter from Lt Gen Dwight E. Beach to the deceased's widow.

The Army Chief of Research and Development paid a warmly appreciative tribute to Dr. Elvehjem's energetic and inspiring part in promoting the Army's nation-wide JSHS Program during the past two years in his role as Chairman of the JSHS Advisory Council.

President of the University of Wisconsin from 1958 until his death, Dr. Elvehjem was internationally renowned for many research contributions in the fields of biochemistry and physiology, for which he received many of the Nation's highest honors.

Born in McFarland, Wis., in 1901, he received his B.S., M.S. and Ph.D. degrees from the University of Wisconsin, serving there as an instructor, professor and administrator for 39 years.

AMC Activation Merges Tech Services

(Continued from page 5)

The Command has subordinate components employing roughly 23,000 personnel and the headquarters staff consists of about 300 officers, enlisted men and civilian employees. Components include 25 test and evaluation activities, eight boards, five proving grounds and three other installations.

Responsible for testing and evaluating military materiel involving an estimated expenditure of roughly $125 million annually, the Command has a mission to plan and conduct tests of materiel for other AMC commands or being developed by the Army for use by other Government departments.

Among major elements of the T&EC are: U.S. Army Electronic Proving Ground, Fort Huachuca, Ariz.; Dugway Proving Ground, Dugway, Utah; Erie Proving Ground (Activity), Erie Ordnance Depot, Ohio; Jefferson Proving Ground, Madison, Ind.; White Sands Missile Range, Las Cruces, N. Mex.; and Yuma Test Station, Yuma, Ariz.

Operational boards under T&EC administration include: U.S. Army Airborne Electronic and Special Welfare Board, Fort Bragg, N.C.; U.S. Army Air Defense Board, Fort Bliss, Tex.; U.S. Army Arctic Test Board, Fort Greely, Alaska; U.S. Army Armor Board, Fort Knox, Ky.; U.S. Army Artillery Board, Fort Sill, Okla.; U.S. Army Aviation Board, Fort Rucker, Ala.; U.S. Army Infantry Board, Fort Benning, Ga.; U.S. Army Transportation Board, Fort Eustis, Va.

Other activities assigned to T&EC Control are: Engineer Test Unit, Fort Belvoir, Va.; U.S. Army Chemical Corps Arctic Test Activity, Fort Greely, Alaska; U.S. Army Chemical Corps Desert Test Activity, Yuma Test Station, Yuma, Ariz.; U.S. Army Chemical Corps Tropic Test Center, Fort Claylor, Panama Canal Zone; U.S. Army Chief of Engineers Arctic Test Activity, Fort Wainwright, Alaska; U.S. Army Chief of Engineers Desert Test Activity, Yuma Test Station, Yuma, Ariz.; U.S. Army Ordnance Test Activity, Yuma, Ariz.;

U.S. Army Ordnance Arctic Test Activity, Fort Wainwright; U.S. Army Polar Research and Development Center, Fort Belvoir, Va.; U.S. Army Quartermaster Research and Engineer Airborne Test Activity, Yuma, Ariz.; U.S. Army Quartermaster Research and Engineer Field Evaluation Agency, Fort Lee, Va.; U.S. Army R&D Office, Fort Wainwright;

U.S. Army R&D Office, Panama, Fort Sherman, Canal Zone; U.S. Army Signal Aviation Test and Support Agency, Fort Rucker, Ala.; U.S. Army Signal Corps Test Activity, Yuma, Ariz.; U.S. Army Signal Missile Support Agency, White Sands Missile Range, White Sands, N. Mex.; U.S. Army Surveillance Drone Test Detachment, Yuma, Ariz.; U.S. Army Transportation Aircraft Test and Support Activity, Fort Rucker, Ala.; U.S. Army Transportation Test Activity, Fort Wainwright.

Munitions Command

Maj Gen William K. Ghormley heads a Munitions Command complex with about 50,000 employees, some 20,000 of whom are with Government-owned contractor-operated plants (GOCO), and transacts business totaling $1.5 billion annually. Brig Gen A. W. Meetze is Deputy CG.

The Munitions Command, headquartered at Dover, N.J., with a staff of 270, directs and controls 55 installations and activities, and executes special Department of Defense, Department of the Army and Army Materiel Command Missions.

Command responsibilities include integrated commodity management of nuclear and nonnuclear ammunition, rocket and missile warhead sections, chemical, biological and radiological material, propellants, explosives and pyrotechnics, and propellant-actuated devices.

The total number of major items with which the Command is concerned exceeds 3,000, and secondary items exceed 42,000.

Key installations and activities of the Command are Picatinny Arsenal, Frankford Arsenal at Philadelphia, Pa., the Ammunition and Supply Agency at Joliet Arsenal, Joliet, Ill., and the Chemical-Biological-Radiological Agency at the Army Chemical Center, Md.

Picatinny Arsenal employs about 7,000 scientists, engineers and support personnel concerned with research and engineering of propellants and explosives, nuclear munitions and end items of ammunition, artillery shells, mortar shells, rockets, missile warhead sections, fire control systems, bombs, mines, grenades and pyrotechnics. Picatinny also is responsible for supporting research and engineering with respect to plastics, adhesives and ammunition packaging.

Frankford Arsenal is a research and engineering center responsible for development and production engineering of various types of ammunition, fire control, propellant actuated devices and materials. With a work force of about 7,000, the Arsenal has made significant contributions in the highest precision optical work and is the Ordnance center for digital computers.

Ammunition, Procurement and Supply Agency has the national procurement and production responsibility for Army ammunition. With about 25,000 employees, it provides solid-propellant charges, warheads, and certain hardware components for a growing number of rockets and missiles, including the Nike family, Honest John, Little John, LaCrosse and LAW, the latter a new light antitank weapon. The Agency also produces major weapons components directly for the U.S. Atomic Energy Commission.

CBR Agency. Employing about 10,000 people, the Agency is concerned with all research, development, industrial engineering, procurement, and supply control in chemical-biological-radiological warfare activities and products.

Pine Bluff Arsenal, Ark., and Rocky Mountain Arsenal, Denver, Colo., also are elements of the Munitions Command, as are the U.S. Army Chemical Procurement District, New York, N.Y., and the U.S. Army Chemical Procurement District, Oakland, Calif.

Active plants and works within Munitions Command jurisdiction include: Holston Ordnance Works, Kingsport, Tenn.; Indiana Ordnance Plant, Charlestown, Ind.; Iowa Ordnance Plant, Burlington, Iowa; Lake City Ordnance Plant, Independence, Mo.; Atchinson Ordnance Storage Facility, Atchinson, Kans.; Lone Star Ordnance Plant, Texarkana, Tex.; Longhorn Ordnance Works, Marshall, Tex.;

Luisiana Ordnance Plant, Milan, Tenn.; Newport Chemical Plant, Wabash River Ordnance Works, Newport, Ind.; Pantex Ordnance Plant, Amarillo, Tex.; Radford Ordnance Plant, Radford, Va., Scranton Ordnance Plant, Scranton, Pa.

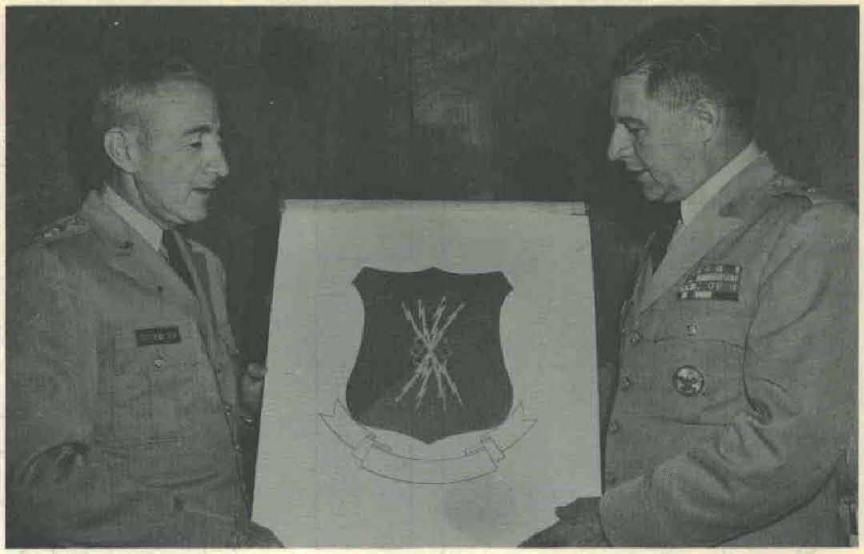
Inactive plants include the Alabama Ordnance Works, Childersburg, Ala.; Badger Ordnance Works, Baraboo, Wisc.; Burlington Ordnance Plant, Burlington, N.J., and the Cornhusker Ordnance Plant, Grand Island, Neb.; Kansas Ordnance Plant, Parsons, Kans.; Marshall Chemical Plant, New Martinsville, W. Va.; New Cumberland Chemical Plant, New Cumberland General Depot, Pa.;

Niagara Falls Chemical Plant,

Niagara Falls, N.Y.; Ordnance Assembly Plant (Activity), Army Chemical Center, Md.; Phosphate Development Works, Muscle Shoals, Ala.; Ravenna Ordnance Plant, Ravenna, Ohio; Kingsbury Ordnance Plant, Laporte, Ind.; Riverbank Ordnance Plant, Riverbank, Calif.; St. Louis Ordnance Plant, St. Louis, Mo.; Seattle Chemical Plant, Seattle, Wash.; Sunflower Ordnance Works, Lawrence, Kans.; Twin Cities Ordnance Plant, Minneapolis, Minn.; Volunteer Ordnance Works, and the Wabash River Ordnance Works, Newport, Ind.

Classified as excess activities assigned to the Munitions Command are the Gulf Ordnance Plant, Prairie, Miss.; Keystone Ordnance Works, Meadville, Pa.; and the Plum Brook Ordnance Works, Sandusky, Ohio.

Other activities assigned to the command include the Chemical Research and Development Laboratory, and the Edgewood Arsenal Activity, Army Chemical Center, Md.



Maj Gen W. K. Ghormley, CG (left) and Brig Gen A. W. Meetze, Deputy, examine insignia for new Munitions Command established at Dover, N.J. The shield is red and blue, denoting the traditional colors of the Ordnance Corps and Chemical Corps, symbolizing that the Munitions Command is made up from these two former Army technical services. The four lightning bolts symbolize the power of the chemical, biological, nuclear and conventional munitions of the Command. Rings around the arrows indicate their common bond.

Electronics Command

Activated in advance of other Army Materiel Command major elements, on May 23, the U.S. Army Electronics Command was headquartered temporarily in the Pentagon, Washington, D.C., and will be permanently located at Fort Monmouth, N.J.

Maj Gen Stuart S. Hoff was reassigned from duty as Chief of Research and Development, Office of the Chief Signal Officer, to head the Command. It will have a total strength of about 14,000 and control procurement at the rate of about $700 million annually.

Major field installations, in addition to Fort Monmouth, are located in Philadelphia, Pa., Fort Huachuca, Ariz., and White Sands, N. Mex.

Important electronics materiel projects for which the Command will be responsible include: Airborne Surveillance System, AN/USD-2; Airborne Surveillance System, AN/USD-5; Command Control Information System (CCIS-70); Universal Integrated Communications and Strategic Army Communications (UNICOM/STARCOM); radio sets AN/VRC-12 and AN/PRC-25.

Activities assigned to the Command include: Research and Development Activity, Fort Huachuca, Ariz.; U.S. Army Signal Research and Development Agency, Fort Monmouth; U.S. Army Signal Air Defense Engineering Agency, Fort Meade, Md.; U.S. Army Signal Avionics Field Office, St. Louis, Mo.

U.S. Army Management Agency, Fort Monmouth; U.S. Army Signal Inspector General Field Offices at Chicago, Ill., and Upper Darby, Pa.; U.S. Army Signal Procurement Office, Fort Meade; U.S. Army Signal Supply Agency, Philadelphia; Midwestern Regional Office, U.S. Army Signal Supply Agency, Chicago; Western Regional Office, U.S. Army Signal Supply Agency, Pasadena, Calif.

Briefings Clarify Overall Status of Army Reorganization

(Continued from page 1)

records and equipment transferred to the U.S. Army Materiel Command.

- The Office of the Chief of Support Services is established in the Army staff at the level of special staff. Concurrently, all functions, personnel, funds, records and equipment of the Office of Support Services, Office of the Quartermaster General, are transferred to the Office of the Chief of Support Services.

Under provisions of GO No. 44, the Chief of Support Services, under the general staff supervision of the Deputy Chief of Staff for Logistics, has Army staff responsibility for the provision of certain support services for the Army, further stated as:

- He has staff responsibility for Army-wide logistic support services comprising: commissary operations, food service, uniform and clothing sales, laundry and dry cleaning, fumigation and bath, self-service supply centers, property disposal holding activities and commercial warehousing; development, review and coordination of Quartermaster logistic services aspects in war, mobilization and contingency plans; care and disposition of remains and personal effects of deceased personnel of the Army, and as directed for the Navy and Air Force.

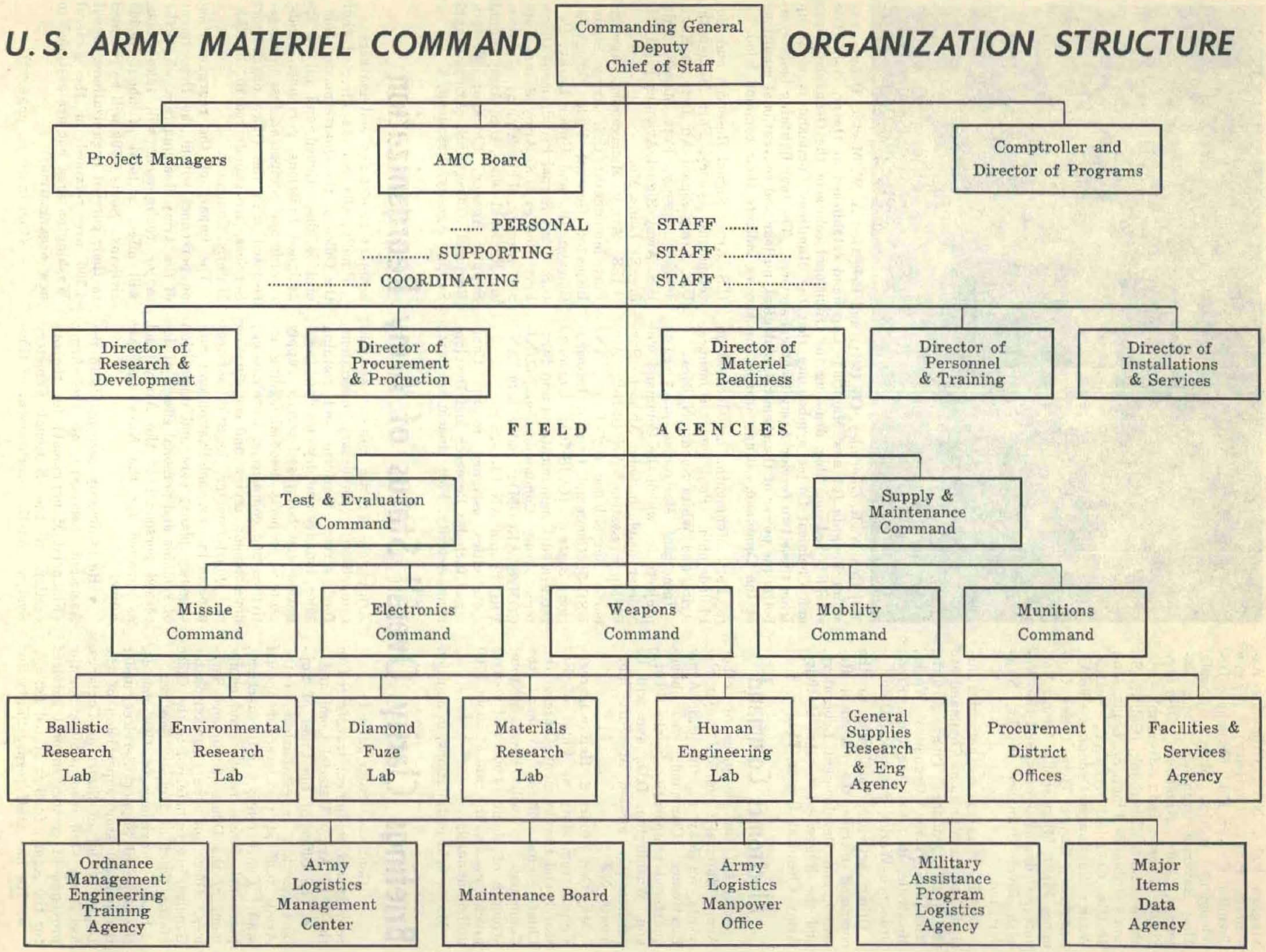
- He is directly responsible to the Assistant Secretary of the Army (Financial Management) for the operation of the National Cemetery System and the procurement of Government headstones and markers.

Finally, GO No. 44 directed that the Office of the Quartermaster General is discontinued and all of its assigned functions, personnel, funds, records and equipment, less those associated with the Office of Support Services, are transferred to the U.S. Materiel Command.

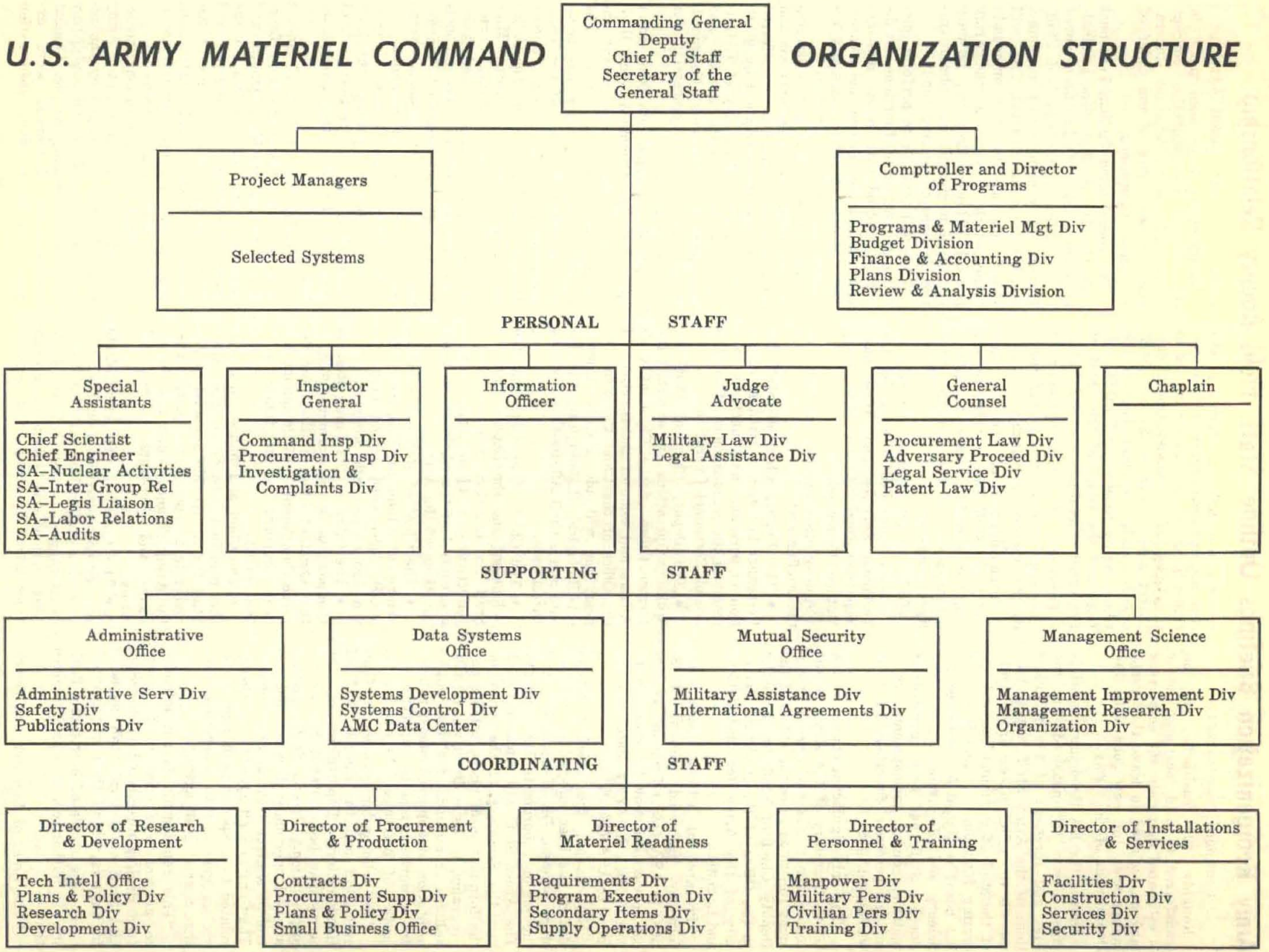
The impact of the reorganization on personnel within the Department of the Army Headquarters, where the major realignment will take place, will affect a total of about 10,300 civilians. Some 5,700 will be retained in their current organizations. About 4,300 are retained in the general Washington area but are assigned to new organizations.

(Continued on page 20)

U.S. ARMY MATERIEL COMMAND ORGANIZATION STRUCTURE



U.S. ARMY MATERIEL COMMAND ORGANIZATION STRUCTURE



Army Reorganization Briefings Outline Staff, Field Agency Relationship

(Continued from page 17)

Roughly 800 positions will be transferred to field locations, but it is estimated that only 460 employees may be required to leave the Washington area for new jobs with the Department of the Army.

During the DA Headquarters briefings, it was reemphasized that the first and foremost of the modifications of the Army Staff responsibilities "is the relief of certain elements of the staff of command-like and operating functions . . . and [the Staff has been] realigned for increased efficiency and effectiveness. . . . The Special Staff has been divested of materiel, combat developments, training and personnel functions. . . ." It was stated that:

"The only significant change in the Office, Secretary of the Army is the result of a transfer of some procurement functions from the Office of the Deputy Chief of Staff for Logistics to the Office of the Assistant Secretary of the Army for Installations and Logistics.

"Procurement actions which were formerly processed through DCSLOG to ASA (I&L) from the Technical Services will now be processed directly from the Army Materiel Command to ASA (I&L)."

No change, the briefing official stated, has been effected in relationships between DA Headquarters and the major subordinate DA elements. The Army Staff will continue to advise the Secretary of the Army on the formulation of plans, policies and programs, to issue directives to subordinate commands for the implementation of approved plans, policies and programs, and to supervise execution of directives. As was stated:

"The relationship between the General Staff and the Special Staff of Headquarters, Department of the Army has been altered by the reorganization. Special Staff agencies are no longer under direction and control of a given General Staff agency. The General Staff agency most closely related to a Special Staff agency exercises 'general staff supervision' over that Special Staff agency.

"This relationship is not intended to prevent a Special Staff agency from dealing directly with other Special Staff or General Staff agencies in matters within their cognizance."

As an example of how direct dealing is authorized, it was explained that:

"The Chief of Research and Development, who has an interest in the research and development officer specialist program, has direct access to the Office of Personnel Operations. Direct access between Special Staff agencies such as contacts between the Chief, Army Reserve and ROTC Affairs and the Office of the Chief of Personnel Operations are visualized."

Functions of the Comptroller of the Army are relatively unchanged by the Army-wide reorganization.

Responsibilities of the Assistant Chief of Staff for Intelligence are undergoing realignment as a result of establishment of the Defense Intelligence Agency.

Technical intelligence functions formerly controlled directly by the Technical Services and ACSI have been transferred to the U.S. Army Materiel Command.

Among other changes announced at the briefing are:

- The Deputy Chief of Staff for Personnel has seen a sizeable reduction in personnel and functions as a result of the establishment of the Office of Personnel Operations.
- The Deputy Chief of Staff for Military Operations has absorbed the former Office of the Chief of Civil Affairs and some of the functions of the Office of the Chief Chemical Officer, and will add a CBR (Chemical, Biological, Radiological) Directorate and a Civil Affairs-Civil Defense Directorate.
- The Chief of Research and Development and the Deputy Chief of Staff for Logistics will be divested [effective Aug. 1] of their direction and control of the wholesale materiel functions of the Army.
- The Chief of Research and Development retains the U.S. Army Research Office with responsibility for the Army's research program.
- The Office of the Chief, Reserve Components is the former Office of the Assistant Chief of Staff for Reserve Components. Little change has been proposed in the functions of this agency.
- The Chief of Finance remains as the principal adviser to the Army Staff for Army-wide financial service and retains operational control over the Army Finance Center and the Finance and Accounts Office, U.S. Army.
- The Chief of the Army Audit Agency now serves in a dual position as both a staff officer with DA Headquarters and as Chief of the AAA. This action was taken to provide freer access by Army Staff agencies to the U.S. Army Audit Agency.

Modifications have been made in the original reorganization concept as related to The Adjutant General and the new Office of the Chief of Personnel Operations.

The consolidated Civilian Personnel Office for DA Headquarters, originally planned for OPO, has been moved to the Office of the Chief of Staff. Instead of yielding most personnel support functions to OPO, TAG will retain—at least for the immediate future—such activities as the Army Special Services Program, off-duty education programs, and administration of nonappropriated funds.

TAG will continue to perform miscellaneous personnel functions not directly involved with career management such as decorations and awards, retirements, separations, casualty reporting and retired activities.

TAG and OPO will jointly develop a realignment of those functions and actions which should be transferred to OPO and those retained by TAG.

The major field activity of TAG is the U.S. Army Data Service and Administrative Systems Command, which provides data processing for DA Headquarters.

OPO is organized into four major divisions. The Combined Arms Division has separate branches for Infantry, Artillery and Armor. The Combat Support Division has separate branches for each of the Technical Services. The Special Support Division has branches for The Adjutant General, Financial Corps, Military Police, Women's Army Corps, Intelligence and Security, and Aviation Warrant Officers. The Colonels Division performs personnel management for all Army colonels except doctors, lawyers and chaplains.

The Office of The Surgeon General was described as "perhaps the least changed by any of the Special Staff functions" by the Army reorganization.

Similarly, the Chief of Engineers retains many of his important functions, such as providing general and specialized engineer services for the Army, Department of Defense and other governmental agencies as assigned; civil works and construction; repairs and utilities activities; military mapping and geodesy.

Functions and organizational structure of the U.S. Continental Army Comand, greatly changed by the reorganization, and of the new Army Materiel Command and the Combat Developments Command were explained at the briefing. Information

on the CDC was given in the July issue in a report on its activation, and the AMC is covered completely elsewhere in this issue.

Basic missions of USCONARC now are:

- To train both individuals and units in the active Army and Reserves.
- To manage and operate Army installations in the CONUS and to maintain equipment and facilities; and
- To support logistically and administratively the combat ready elements of the U.S. Army Air Defense Command (ARADCOM).

An important new mission is to provide the command and staff of the Army component of the new unified STRIKE Command. To accomplish this mission, UNCONARC prepares contingency plans, conducts maneuvers and tests, and supports deployment of combat-ready units on orders of the Joint Chiefs of Staff through STRIKE.

Major elements of CONARC include 27 schools of the Combat Arms, the Technical, and the Administrative Services. Excluded from USCONARC control are the Army War College, the U.S. Military Academy, the Prep School, the Strategic Intelligence School, the Language School, the Medical Professional School, and the Judge Advocate General School.

Under the new organizational structure, USCONARC will have two deputies directly under the Commanding General. The Deputy CG for Resources is responsible for installations. The Deputy CG for Trainings and Readiness is charged with individual training, schools and active Army unit operations as well as the direct responsibility for Reserves.

The major elements of the staff are six Deputy Chiefs of Staff. Except for The Surgeon General, none of the Technical Services is identified at USCONARC Headquarters by separate staff elements. Activities of the coordinating staff integrate all of the functions previously assigned to the Technical Services.

Simultaneously with the transfer of 14 schools and three training centers to USCONARC, some 290 STRAF units were reassigned from the Technical and Administrative services, thus forming the largest combat command in the U.S. Army. USCONARC embraces 272,000 STRAF military personnel and a total of 417,000 personnel.

Little change has been effected in the functions of CONUS Armies. In some cases their support responsibilities have increased as a result of the assignment of additional schools, training centers and units to USCONARC.

Command relationships between USCONARC and its facilities and between the Combat Developments Command and its agencies are undergoing significant changes, in line with USCONARC's removal from the current doctrine and combat developments area.

Similarly, the relationships between USCONARC and the materiel structure are being adjusted, consistent with reassignment from USCONARC to the Army Materiel Command of responsibility for the seven CONARC test boards. USCONARC will be called upon from time to time by the AMC or the Army Staff to conduct troop tests of materiel.

USCONARC has been conducting reorganization studies in depth of certain installations where activities have been controlled by multiple commands. An example of the results is the refinement of responsibilities of the CG of the Army Finance Center at Fort Benjamin Harrison.

Fort Gordon, Fort McClellan, Fort Holabird and several other posts were included in the in-depth studies, and some realignments are expected.

Signifying Termination of Traditional Role of Technical Services

FACETIOUSLY, POSSIBLY A BIT IRREVERENTLY, some of The Pentagon wits dubbed this distinguished gathering "The Last Supper." Shown is the final luncheon-business session of the Chiefs of the Army Technical Services with the Deputy Chief of Staff for Logistics—the end of more than 10 years of such semimonthly gatherings, terminated by Army-wide reorganization. Left to right, seated: Lt Gen Leonard D. Heaton, The Surgeon General; Lt Gen Robert W. Colglazier, DCSLOG: Maj Gen Webster Anderson, The Quartermaster General; Maj Gen Ralph C. Cooper, Assistant DCSLOG; Maj Gen Earl F. Cook, Chief Signal Officer; Maj Gen William R. Shuler, Director of Installations, DCSLOG. Standing: Col Daniel Bigelow, Ordnance Corps; Col William H. Guerney, Jr., Office, Assistant Secretary of the Army (Installations and Logistics). Seated: Maj Gen William F. Cassidy, Deputy Chief of Engineers for Construction; A. Tyler Port, OASA (I&L); Maj Gen Rush B. Lincoln, Jr., Chief of Transportation; Paul R. Ignatius, Assistant Secretary of the Army (Installations and Logistics); Maj Gen Marshall Stubbs, Chief Chemical Officer.

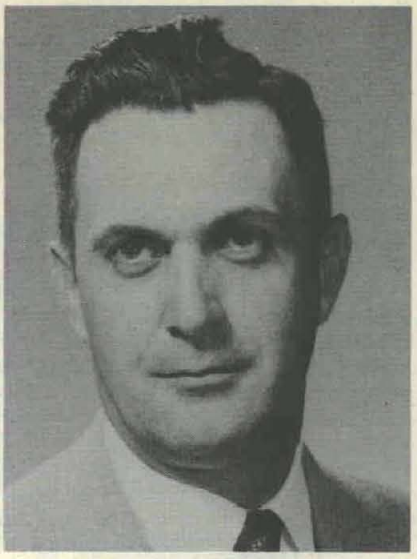
USAEPG Promotes Dr. Frese to Chief Scientist

Dr. Robert E. Frese, who holds three degrees in electrical engineering and one in mathematics from the University of Michigan, has been named Chief Scientist at the U.S. Army Electronic Proving Ground, Fort Huachuca, Ariz.

The 34-year-old native of Bronx, N.Y., was promoted to the top civilian post at the Army Signal Corps installation from his previous position of Deputy Director of the Systems Development Directorate. From 1959 to 1961 he was Deputy for Scientific Affairs of the Combat Developments Directorate.

Dr. Frese came to the Proving Ground after receiving his Ph. D. degree in 1959 following more than 10 years association with Michigan University as student and teacher. During his last two years there, he was an instructor and assistant professor in the Department of Electrical Engineering and served as a consultant on electronic countermeasures.

After receiving his master's degree in 1952, he became a research associate at the Willow Run Laboratories of the University and continued in that capacity until he joined the faculty in 1957. During this 5-year period, he was engaged primarily in the evaluation of vulnerability to countermeasures of air-terminating guided missile systems. At Michigan he showed such promise that he was awarded the Westinghouse Fellowship for three school years, 1953-1956.



Dr. Robert E. Frese

In addition to membership in five honorary scientific societies, Dr. Frese is active in the Institute of Radio Engineers, the American Institute of Electrical Engineers, and the Armed Forces Communications and Electronics Association. Since 1959 he has been a member of the Board of Directors of the Consumers' Union of the U.S., Inc., publisher of *Consumer Reports*.

4 Army Scientists Accept Bids to Present Papers at Antarctic Logistics Meet

U.S. Army scientists will present four of the 75 technical papers programed for the International Symposium on Logistics in Antarctica. Sponsored by the Scientific Committee for Antarctic Research, International Council of Scientific Unions, the symposium is scheduled at the University of Colorado, Boulder, Colo., Aug. 13-17.

One of the featured exhibits at the symposium will be a U.S. Army Corps of Engineers scale model of its polar experimental station at Camp Century, Greenland. Earphones will be provided for visitors to hear a recorded narration of some of the activities at the "City Under the Snow."

The four Army authors and titles of their presentations are: Dr. Paul A. Siple, Scientific Adviser of the U.S. Army Research Office, OCRD, "Site Selection and Development for Antarctic Installations"; Col Gerald W. Homann, Commander, U.S. Army Polar Research and Development Center, "Logistics of Icecap Surface Transportation";

Richard P. Schmitt, Engineering Research and Development Laboratories, Fort Belvoir, Va., "Glacial Water Supply and Sewage Disposal Systems," coauthored with Raul Rodriguez, also of ERDL; Lt J. H. Green, TRECOM, "Operation of Turbine Engine Helicopters in the Antarctic."

ARPA'S Project VELA Advances Techniques of Underground Blast Detection

The Advanced Research Projects Agency (ARPA) of the Department of Defense has been carrying on Project VELA, an intensive research and development program to improve methods of detecting underground nuclear explosions.

The continuing study of earthquakes and the resumption of underground nuclear testing have brought forth new data for evaluation. Several other research projects initiated in the field of seismology and the development of related seismic detection techniques have begun to bear fruit.

These new data are under continuing review and analysis, but in view of the high degree of public interest in the subject, the following preliminary conclusions and observations are presented.

During the past year it has been determined that sensitive seismic detection instruments can be operated in abandoned cased oil wells at depths reaching 10,000 feet. Initial research results indicate that the sensitivity achieved in such installations is five to ten times better than that obtained at the surface.

Consequently, it appears probable that a single deep hole seismic installation will match the capability of a large horizontal array of seismic detectors spaced over several miles, i.e., it may be possible to place effective seismic instruments in areas previously felt to be inadequate as sites for detection stations.

In addition, further experimentation with surface arrays of seismic instruments indicates that, with the use of special filtering techniques, improvement in sensitivity somewhat greater than that previously considered possible can be obtained. The combined use of deep hole and horizontal array techniques would provide an increase in signal detection capability; however, their effectiveness has not been fully evaluated.

Initial experiments with ocean-bottom seismometers at depths as great as 4,000 feet and at a distance of 300 miles from Nevada demonstrate that these unique instruments are capable under some conditions of detecting seismic signals from underground nuclear detonations with a sensitivity comparable to that of conventional land installations.

As a result of the highly monitored GNOME underground nuclear explosion near Carlsbad, New Mexico, it has been found that seismic travel-time anomalies, even within the United States, are sufficient to cause the location of what could be a suspicious seismic event to fall some distance outside of the 75-square mile area of suspicion previously considered adequate by many experts.

On the other hand, new data under collection and new time correction techniques under study should assist in alleviating these uncertainties in those areas where travel time and other geophysical data can be accumulated, an ARPA official said.

'Skirts' Elevated to New Heights

Weather Balloons Fail to Wobble in Extreme Hobble

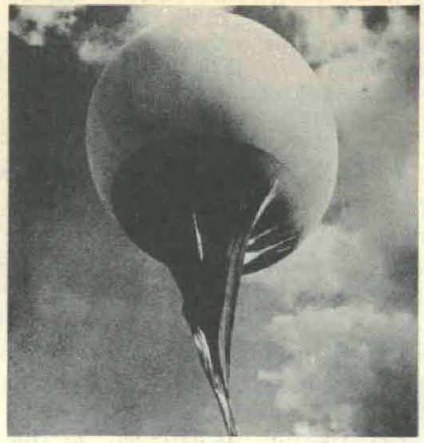
A narrow-bottom skirt might hobble a lady's progress, but it has the opposite effect on a new weather balloon developed by the U.S. Army Signal Research and Development Laboratory.

Streamlining induced by the skirt enables the balloon to soar aloft nearly twice as fast as conventional types. The non-inflated skirt, eight feet long, reduces the drag induced by the spherical shape of the inflated part of the balloon. Meteorological data can be collected faster and with greater accuracy.

With a ceiling of some 75,000 feet, or nearly 15 miles, the balloon starts upward at about 1,600 feet per minute. Speed gradually increases to 3,000 feet a minute at the 10-mile mark. The ascent rate then tapers off until the balloon bursts in the rarefied atmosphere. The inflated body of the balloon is seven feet in diameter at the time of launching but has expanded to about 24 feet by the time the high point is reached.

Standard Weather balloons soar aloft at a rate of about 1,000 feet per minute. Intensive research has sought faster ascent to obtain atmospheric information rapidly for such purposes as plotting ballistic missile launchings, conventional artillery operations, and predicting atomic fall-out.

In addition to speed of ascent, the new balloon drifts less, especially during high winds, so that information is gathered more directly over the operational site. The reduction in horizontal drift also results in greater accuracy of data on wind speed and direction, since the normal error of the Rawin radio direction finder is less when the transmission path is along a relatively high angle.



Weather balloon rises to 75,000 feet at about 1,700 feet per minute. Electronic sensing device (radiosondas) are suspended beneath 8-foot skirt.

The aerodynamically shaped balloon uses only 175 cubic feet of hydrogen gas. Earlier experiments with fast-rising types entailed inflating thick-walled balloons with 300 or more cubic feet of hydrogen. This approach to obtaining rapid ascents created logistics problems because the charges of calcium hydride used to generate the gas in the field would be almost double the requirements of the new balloon.

The initial production contract, for 1,900 of the fast-rising neoprene balloons, has been awarded the Dewey and Almy Co. which teamed with the Kaysam Corp. of America and the Signal Corps in developmental work. Several hundred have been distributed for Army field use.

Development of the new balloon was headed by Moses B. Sharenkow, Army Signal R&D Lab physicist.

Army-wide Parley Set on Dynamic Behavior of Materials

Approximately 200 Army and Army contractor personnel are scheduled to attend the Army-wide Conference on Dynamic Behavior of Materials, Springfield, Mass., Sept. 26-28.

Participants of the Operation Crossfire meeting on basic engineering held in May 1961 at the Army Research Office in Durham, N.C., suggested the conference to bring together scientists and design engineers on dynamic loading problems.

Four sessions will be held in the areas of Army Problems in Dynamic Behavior, Design Criteria, Instrumentation and Techniques, and Fundamental Studies.

Coordinators for the sessions include: Joe Crenshaw, Army Ballistic Missile Agency, Huntsville, Ala.; Dr. Alexander Hammer, Springfield Armory, Springfield, Mass.; Joseph I. Bluhm, Watertown Arsenal, Watertown, Mass.; and Dr. Robert E. Weigle, Watervliet Arsenal, Watervliet, N.Y.

A subcommittee to organize the agenda includes Harry O. Huss, Army Chemical Corps Engineering Command, Army Chemical Center, Md.; Frederick J. Lindner, Engineer Research and Development Laboratories, Fort Belvoir, Va.; Nelson Daniels, Transportation Engineering Command, Fort Eustis, Va.; and Charles J. Kropf, Ordnance Tank-Automotive Command, Detroit, Mich.

TC Marks Birth, 'Goodbye' With Heads Proudly High, Nary Trace of Tear in Eye

Celebration of the 20th anniversary of the U.S. Army Transportation Corps might have been likened to a Requiem Mass. Hours later, on Aug. 1, the Corps was phased out—engulfed within the U.S. Army Materiel Command.

Still, on July 31, TC personnel stationed in many widely separated areas of the world held their heads high, in respectful tribute to the proud traditions of the Corps, at garrison reviews, receptions, demonstrations and other commemorations.

Brooklyn Army Terminal, for example, took the occasion to mark its role as an important TC element by simultaneously observing its 43rd birthday. During World War II the Terminal served as a base for the handling of 3.5 million troops and 43 million tons of cargo.

The Corps' overall magnitude of operations was greatest in World War II and the Korean War. More than seven million passengers and 126 million tons of cargo flowed through its eight war-time POEs.

In recent years the Corps has been responsible, through its research and development activities, for important advances in meeting the Army's requirement for high-speed mobility under all conditions of terrain.

Among the more recent TC achievements are development of vertical and short takeoff and landing aircraft, rugged and highly maneuverable tracked and wheeled vehicles, and new techniques to facilitate the handling and movement of cargo.

Phase-out of QMC Marked By Publication Reviewing Corps History Since 1775

"Quartermaster Support of the Army: A History of the Corps, 1775-1939" has been published by the Office of the Quartermaster General.

This new historical work, by Dr. Erna Risch, Chief of the Quartermaster Historian's Office, covers Quartermaster activities in the Army from the beginning of the Revolutionary War to President Franklin Roosevelt's proclamation of a limited emergency. It is concerned with the logistics of war—the transportation of troops and the procurement and delivery of rations, clothing, equipment and munitions essential to an army taking the field.

The 796-page volume, complete with maps, photographs and an index, is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at $5.50.

Army Senior Medical Student Program Shows Gain

An increase of 50 percent in the number of college seniors enrolled in medical schools throughout the United States and Puerto Rico under the Army Senior Medical Student Program is reported by Lt Col David M. Tormey, MC, Chief of the Officer Procurement Branch of the Army Surgeon General's Office.

The program now includes 102 students, a gain of 34 since last year. It provides full pay and allowances to medical students in their senior year, and also furnishes the Army Medical Service with potential career officers.

To become eligible, a student must not have passed the age of 30 prior to date of appointment, and to have successfully completed his junior year of medical school. He will then be commissioned as a lieutenant in the Medical Service Corps Reserve, and will serve in this capacity during his final year of medical school.

Concurrent with graduation from medical school, the student will be appointed as a 1st lieutenant in the Medical Corps with an obligation to participate in the National Intern Matching Program. In addition, he must serve on active duty for three years immediately following military or civilian internship.

Participants who are not matched for an Army internship are released from active duty for one year to allow them to complete a civilian internship, and are then recalled to active duty for three years at the end of the 12-month period.

Applications for this program will be forwarded so as to reach The Surgeon General, Department of the Army, Washington 25, D.C., ATTN: MEDPT-MP at the earliest practicable date, but not later than Mar. 1 of the junior year.

Contract Calls for Aerosol Dispersal Effects Study

The Army Chemical Corps has awarded a $200,550 contract to Geophysics Corporation of America (GCA) to develop reliable techniques for predicting the low-altitude dispersal characteristics of aerosols and gaseous clouds released in the atmosphere under varying terrain and meteorological conditions.

The award was made under the Industrial Study Requirement Program, established by the Chemical Corps' R&D Command to enlist the support of the Nation's industrial scientific and technical talent in solving urgent technical problems in military fields. (See article by Brig Gen Fred J. Delmore, CG, CmlC R&D Command, August 1961 issue, pp. 10-11.)

GCA has dispatched a team of meteorologists to Salt Lake City, Utah, to assist scientists at the Army's Dugway Proving Ground in detailed analyses of past diffusion experimental data and on the design of new experiments to improve aerosol prediction techniques.

Experiments will utilize sampling instruments to measure the amount of tracer material in a network of observation points downwind from the release site. Later investigations may include studies of dispersal characteristics under the complexities of vegetation cover, local wind circulations, precipitation "scavenging," and over greater distances.

Atmospheric tracer material includes gases such as sulpher dioxide over the short-travel distances, and micron-size fluorescent pigment particles (somewhat cubicle in form) for experiments involving greater distances. These pigments are not a normal constituent of air and, with appropriate lighting, can be distinguished easily under a microscope.

Serving as scientific director of the program is Dr. Harrison E. Cramer, a leading authority on atmosphere turbulence, diffusion, and pollution problems. A member of the GCA staff, he also acts as Director of Micrometeorological Research at the Massachusetts Institute of Technology Round Hill Meteorological Field Station, South Dartmouth, Mass.

Army NSF-I Winner Briefed On WRAIR Research Effort

STUDENT SCIENTIST Ronald Gilson, 17, inoculates an egg with a throat washing suspected of carrying an influenza virus, in the Department of Bacteriology, Walter Reed Army Institute of Research, Washington, D.C. As one of 16 National Science Fair-International winners selected by the Army to make an all-expense paid one-week visit to the Army R&D installation of his choice, Gilson spent the week of June 25-29 in the WRAIR Division of Communicable Disease and Immunology. William C. Branche, Jr., a civilian bacteriologist in the department, performs a viral neutralization test in background. Gilson's award winning entry in the science fair was entitled "Cytological Investigations of Interferon Stimulated by Influenza PR8."

Army Authors Give Papers at International Meets

Growing stature of Army science in the world scientific community is reflected today by the increasing number of technical presentations made by Army scientists at international conferences. For example:

• A paper entitled "Immediate Direct Vision Mitral Valvulaplasty for Life-Threatening Surgically Produced Insufficiency," presented by Lt Col Dean F. Winn, Jr., MC, U.S. Army, Second General Hospital, at the XI Congress of the European Cardio-Vascular Surgery, in Stockholm, Sweden, July 1-4.

• "Resonant Harmonic Generation by Paramagnetic Ions" is the title of the paper presented by I. R. Senitzky, at the First International Conference on Paramagnetic Resonance in Jerusalem, Israel, July 16-20. He is an employee of the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J.

• At a conference on "Recent Progress in the Experimental and Theoretical Methods of Crystal Structure Research" held in Munich, Germany, July 25-31, George Will, also of USAERDL, presented a paper titled "Symmetry Relations in the Convolution Molecule Method."

• At the 2nd International Congress of Radiation Research, Harrogate, England, in August, Capt Richard O. Spertzel, Veterinarian Corps, will present a paper, "Platelet Size Distribution Following X-Irradiation," with T. J. Bucci and M. Ingram.

• Col Walton M. Edwards, MC, Ireland Army Hospital, Fort Knox, Ky., will present a paper on "The Solitary Nodule (Coin Lesion) of the Lung—An Analysis of 52 Consecutive Cases Treated by Thoracotomy, and a Study of Preoperative Diagnostic Accuracy," at the International Congress of Internal Medicine scheduled for Sept. 5-8 in Munich, Germany.

Army, N.Y. Academy of Sciences to Sponsor Endogenous Metabolism Symposium

"Endogenous Metabolism with Special Reference to Bacteria" is the theme of a symposium scheduled Sept. 20-21 in New York City under joint sponsorship of the U.S. Army Research Office and the New York Academy of Sciences.

Expected to attract 100 or more leading research scientists of the United States, England and Canada, the conference is significant of the current importance of Army research in biomedical and biochemical fields.

Dr. Carl Lamanna, Deputy Chief of the U.S. Army Research Office Life Sciences Division, will preside as chairman. He commented:

"The Army's interest in the endogenous metabolism of microbes rests on the need to understand how these organisms get along in environments with minimal supplies of food. The persistence of microorganisms in such environments has significance in medical microbiology; it also impacts on the biological basis for sanitary engineering practices."

Session chairmen are Dr. E. A. Dawes, University of Glasgow, Scotland; Dr. Harlyn O. Halvorson, University of Wisconsin; Dr. M. Frank Malette, Pennsylvania State University; and Dr. C. E. Clifton, Stanford University, Calif.

Scheduled to present invited papers are: Dr. Allen G. Marr, University of California; Drs. Richard E. Ecker and A. L. Koch, University of Florida; Dr. R. T. Schimke, U.S. Public Health Service, Bethesda, Md.; Dr. H. P. Klein, Brandeis University, Waltham, Mass.; Dr. W. Vishniac, University of Washington; Drs. H. J. Blumenthal, Philip Gerhardt and S. H. Black, University of Michigan; Dr. R. W. Krauss and Raymond Calloway, University of Maryland; Dr. G. R. Seaman, University of Texas; G. R. Mandels, United Fruit Co., Norwood, Mass.; Dr. Barbara Wright, Massachusetts General Hospital, Boston, Mass.; Dr. Hillel S. Levinson, U.S. Army Quartermaster Research and Engineering Command, Natick, Mass.; Dr. D. W. Ribbons, University of Glasgow, Scotland; Dr. Joel Mandelstam, Mill Hill, England; Drs. Audrey F. Gronlund, Margaret G. Duncan and J. J. R. Campbell, University of British Columbia, Canada.

A report of conference proceedings will be published and made available to U.S. Army research scientists.

Chief Scientist Spurs Basic Research Drive

Dr. William W. Carter, a 40-year-old nuclear physicist, is Chief Scientist of the U.S. Army Ordnance Missile Command, a job involving some 21 Army missile systems.

Dr. Carter moves on and off the job in a quiet-spoken, straight-line approach devoid of frills. An outspoken advocate of the need for more basic research, he is a guiding spirit in a drive currently underway to establish a University of Alabama Research Institute at Huntsville, Ala. He is also chairman of a joint graduate study steering committee of AOMC and NASA's Marshall Space Flight Center, also situated at Redstone Arsenal.

Born in Pensacola, Fla., Dr. Carter received his B.S. degree in physics from Carnegie Institute of Technology in 1943. His graduate degrees, including a Ph. D. in physics, were awarded by the California Institute of Technology where he was a teaching fellow in physics.

From 1949 through 1959, he was engaged in nuclear and thermonuclear weapons research and development at Los Alamos Scientific Laboratories.

Wartime service in the Navy from 1943 through 1946 included a tour as officer-in-charge, field measurements project, in connection with radar wave propagation research at the Naval Research Laboratories in Washington and in the Pacific area.

Dr. William W. Carter

Maj Gen Power Named Member Of ABC Standardization Unit

Maj Gen George W. Power, Deputy Chief of Research and Development, recently assumed the duties of U.S. Army member of the Washington Standardization Officers (WSO), succeeding his Chief, Lt Gen Dwight E. Beach.

Composed of one senior representative from the American, British and Canadian Armies, the WSO is charged with coordinating the Tripartite ABC Standardization Program as related to Army materiel. The British Army is represented by Maj Gen J. M. McNeill and the Canadian Army by Brigadier J. A. W. Bennett.

DOFL Scientist Heads ARO-Europe Physical Sciences

Charles Ravitsky, a specialist in infrared research and one of four individual winners of $300 prizes at the 1962 Army Science Conference, has been selected to head the physical sciences research program of the U.S. Army Research Office, Europe.

Previously, he was Research and Development Supervisor in Applied Physics at the Diamond Ordnance Fuze Laboratories, Washington, D.C.

In his new duties he will monitor 38 active physics and math contracts which comprise a research program in the physical sciences of more than $1 million, the largest in USARO, Europe.

One of a group of scientists who received the DOFL Achievement Award in 1956 for basic development of the thermal battery, Mr. Ravitsky has more than 50 technical papers to his credit, the majority in classified R&D work.

A native of New York City, he earned a B.S. degree in mathematics and physics and an M.S. degree in education from the City College of New York. He entered Government service in 1941 with National Bureau of Standards. In 1953 the division in which he worked became DOFL.

Mr. Ravitsky has served as the Executive Secretary of Sub-group J, Infrared, of the Tripartite Technical Cooperation Program of the United States, Canada and Great Britain. He was a member of the U.S. delegation to the NATO group of infrared experts for more than a year.

Between 1943 and 1954 he taught physics at the George Washington University and from 1949 to 1961 was a professional member of the Civil Service Board of Examiners which sets standards for physicists employed by the Government.

Professional affiliations include the American Physicists Society, Optical Society of America, American Association of Physics Teachers, Washington Academy of Science, Sigma Pi and American Ordnance Ass'n.

Rolling Liquid Transporter Passes Final Tests

The Rolling Liquid Transporter (RLT) recently completed final tests leading to Army acceptance and type-classification for production. Tests were conducted under the U.S. Army Transportation Research Command (USATRECOM), Fort Eustis, Va. Field units are expected to have the mobile "gas stations" next year.

The RLT is a tire-like container which can hold 1,000 gallons of gasoline or other liquid and can be towed anywhere behind an Army tank, truck or amphibious vehicle. Each unit consists of two huge tire-like containers. Mounted on an axle and tow bar assembly, the tires are approximately 5 feet tall, 3½ wide.

As many as five RLTs can be towed in tandem, thus allowing a combat unit to double or triple its normal operating range with little or no sacrifice to speed or mobility. Acceptance of a production prototype follows nearly 6 years of Army experimentation with military and commercially designed models.

Various Army agencies have helped carry out the latest test program. The Airborne Electronics & Special Warfare Board at Fort Bragg, N.C., conducted paradrop tests from as high as 1,500 feet to determine the suitability of the RLT air transport as well as air delivery.

The Transportation Research Command conducted high-speed tandem tow testing over conventional and rough road surfaces. Individual units have been towed by Army trucks at speeds up to 45 m.p.h. and trains of five units can be towed at 24 m.p.h.

Other tests were carried out by the U.S. Armor Board, Fort Knox, Ky. These tests included high speed towing of RLT units over very rough terrain, utilizing tanks and Armored Personnel Carriers as tow vehicles.

Rigorous desert tests were conducted by the Transportation Test Activity at the Yuma Test Station, Ariz., and the Alaska Test Board at Fort Greely performed tests in snow and ice at temperatures ranging down to —50° F.

The Firestone Tire and Rubber Co. successfully tested the units' self-sealing capability by subjecting gasoline loaded RLTs to .30 Cal. small arms fire. The U.S. Rubber Co. and the Goodyear Tire and Rubber Co. took part in development and testing.

USAERDL Gets New EE Chief

Arthur H. Nolan, formerly with the U.S. Army Engineer Maintenance Center, Columbus, Ohio, has been appointed Chief of the Electrical Engineering Branch, Engineering Department, at the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.

A native of Wallingford, Conn., he attended the University of California, where he received a B.S. degree in mechanical engineering, and has taken post-graduate work at Washington Universtiy, St. Louis, Mo., and the Colorado School of Mines. He also has attended the Army Logistic Management School, Fort Lee, Va., and the Personnel Management for Executives course at Fort Benjamin Harrison, Ind. He entered Civil Service in 1934.

USAERDL Developing Throw-away Magneto

A very compact magneto requiring no spare parts or maintenance is currently being tested at the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va. Unlike the conventional magneto, which is designed for repair parts replacement, it is a throw-away unitized type.

According to USAERDL engineers, it can save the Army thousands of dollars by eliminating complicated cataloging and supply of repair parts, as well as bulky and expensive support equipment and tools.

Replacement of the unitized magneto has been found to be less costly and time consuming than replacing parts in the conventional model. In addition, little or no training of maintenance personnel is required.

Miss Varina Jordan displays new unitized magneto tested at USAERDL.

The unit weighs 3¾ pounds, is 45 cubic inches in size, and costs less than $16. The comparable conventional magneto weighs 9¼ pounds, is 78.5 cubic inches, and costs $32.

The units undergoing tests were developed by Slick Electro Corp., Rockford, Ill., under contract with the Laboratories.

By Dr. Ralph G. H. Siu

THE Nth BRIGAND. One of the most difficult problems of research management is bringing a project to a close. Perhaps the point of diminishing returns has long been past; perhaps the researcher is plumb out of ideas; perhaps there are other areas of greater fertility and urgency.

Along the same vein, one of the most difficult aspects of briefings and reportings is painting the issue clearly and quickly—perhaps there is little to report; perhaps the project manager is hazy in his mind; perhaps he is unable to come to the point.

Sometimes I find myself listening to a modern version of the old French folk tale of The Three Brigands. It goes something like this:

Three brigands were seated on a stone. The youngest said to the oldest:

"Tell us a story, Edward."

And Edward began:

"Four brigands were seated on a stone. The youngest said to the oldest: 'Tell us a story, Edward.' And Edward began: 'Five brigands were seated on a stone. . . .'"

THE OUTRAGEOUS AND THE CONFORMING. It looks as if the dangers are the dangers are the dangers are the dangers (with apologies to Miss Stein)—no matter what the field of thought. Judge Learned Hand, the distinguished jurist who passed away last August, had the following to say, which perhaps may equally well have been applied to the general situation in R&D:

"Our dangers, as it seems to me, are not from the outrageous but from the conforming; not from those who rarely and under the lurid glare of obloquy upset our moral compliasance, or shock us with unaccustomed conduct, but from those, the mass of us, who take their virtues and their tastes, like their shirts and their furniture, from the limited patterns which the market offers."

THE INEVITABLE. I had always thought that the admonition attributed to Confucious about "relaxing and enjoying it" made pretty good sense around the Pentagon.

But recently Sir Charles Bartlett of Vauxhall Motors went "Confucius" even one better. Says he, "I try to identify the inevitable and then I cooperate with it."

GIMRADA Tests Automated System for Constructing Mosaic Maps

An automatic system for the construction of mosaic maps from serial photographs is currently being tested by the U.S. Army Engineer Geodesy, Intelligence and Mapping Research and Development Agency (GIMRADA), Fort Belvoir, Va.

Designed to meet the demand for rapid and accurate map positions, the system uses an automated autofocusing rectifier and an automated variable magnification positioning printer. Each unit system is equipped with an electronic control console capable of conversion to tape operation.

Photomosaics normally are made by a cut and paste process, which is time consuming but which still saves time over the laborious drafting of a topographic map.

The automatic focusing rectifier features a transport easel which accepts 9½ x 9½ inch roll film, and a small computer which automatically computes displacements of the principal points with reference to the tilt angles as the easel and negative stages are tilted. A white painted cover slide on the transport easel enables the operator to examine the projected image during orientation of the negatives.

Film positives are removed and processed for use in the automated variable magnification positioning printer. X, Y, Z coordinate and photo azimuth data are programed into the control console which automatically positions the easel and the projector head to the correct nadir grid position. Successive images are exposed until a 22 x 22 inch area is filled. The resulting mosaic negative is processed for quantity printing.

The system was designed and fabricated by the Union Instrument Corp., Plainfield, N.J., under contract with GIMRADA.

Sgt Orville R. Childers at left console operates an automated autofocusing rectifier while Lt Carl T. Zovko operates the console of an automated variable magnification positioning printer at GIMRADA, Fort Belvoir, Va.

USAEPG Tests Flash Unit For Night Aerial Photos

A powerful electronic flash unit with more than 30 times the power of an average photographer's unit is being tested for night aerial photography at the U.S. Army Electronic Proving Ground, Ft. Huachuca, Ariz.

The 4,000-volt capacitors produce 2,100 watt seconds of energy, sufficient to illuminate an area of 750 square feet from an altitude of 1,000 feet. Engineers hope it may prove satisfactory up to 4,000 feet.

Manufactured by the Hycon Manufacturing Co., Monrovia, Calif., the unit is 4 feet long, weighs 165 pounds and is fitted with a 6-inch flash tube mounted in a 16-inch reflector. It is contained in a 5-foot wing pod designed for light aircraft. The unit's source of power is the plane's 24-volt, 100-ampere generator.

QM R&E Command Developing Folding Tanks for Fuel for Mobile Forces

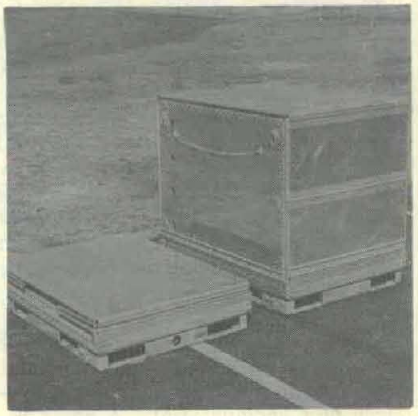
By Norman Weisberg

An experimental, collapsible, aluminum, 350-gallon capacity box-type tank is being evaluated by the Army as a possibility for furthering the bulk concept of rapid supply to highly mobile forces.

Developed at the QM R&E Command, the new tank is another approach to a system of fuel supply which already includes collapsible rubber containers ranging from a standard 500-gallon capacity model to a huge "pillow"-type 5,000-gallon capacity container designed to convert railroad gondolas, flat cars, and marine equipment to bulk fuel carriers. Included is a 10,000 gallon-container for static or field storage.

The experimental unit consists of a riveted aluminum alloy shell with a liner made of fuel-resistant synthetic rubber which folds into a predetermined position when the container is collapsed. Hinged top and sides fold down to form a unit only 11 inches high. Rested upon a base, it can be easily handled by forklift equipment.

Opened, the container is 52 by 42 by 46 inches. A simplified automatic filling valve stops the flow of fuel when the capacity has been reached. Window indicators are provided on the left side panels for visually determining the amount of fuel.



Army's experimental 350-gallon, aluminum, collapsible bulk fuel container.

Although the container can withstand the anticipated pressure build-up, a vent is provided to bleed off the vapor pressure for added safety prior to transport on cargo aircraft.

When empty, the rectangular-shaped container weighs 250 pounds. Filled with gasoline, its weight is approximately 2,290 pounds, and with jet fuel around 2,460 pounds. It is usable from —40° F. to +135° F. Recent tests, however, have indicated usability to —60° F.

Interest is being evidenced in the container from many segments of industry, not only for its use as a fuel container but also, minus the liner, as a general-purpose cargo unit by a change in hinging of panels.

Value Analysis Techniques Cut Cost of M-72 'Pocket Rocket'

The U.S. Army's M-72 — a crack little pocket rocket with which one soldier can knock out a tank—is in production. It reached this point in a comparatively short time after the order went out:

"Give us the most up-to-date weapon possible for the foot soldier of tomorrow with yesterday's old-fashioned price tag."

In a day of avalanching scientific advancement and spiraling costs, that was a big order. But under the management of the Army Ordnance Missile Command at Redstone Arsenal, Ala., the weapon started on its way.

The latter part of the double-barreled order was accomplished largely by applying value analysis techniques during M-72 design and development. Value analysis is an exhaustive search to find the most economical way of making a product, weighing cost against effectiveness.

Applied by the Ordnance Corps to the M-72 project, this "Value Engineering" resulted in substantially reduced production costs — estimated per unit at no more than a good transistor radio.

Today design of the M-72, nicknamed the LAW by soldiers, is frozen for this particular model and the weapon is ready for American industry to turn out in mass quantities.

M–72 (LAW) rocket firing tube, weighing 4½ pounds, is shown with practice rocket and sling. The plastic and aluminum tube is discarded after firing.

Testing proved it highly effective against tanks, other armored vehicles, concrete bunkers, earth-filled log emplacement and sandbags.

The devastating light assault weapon weighs little more than several loaves of bread a toddler might tuck under his arms for the family picnic. A soldier can sling it over his shoulder and not be burdened.

In the past, the primary objective usually was to provide, in double-time, a weapon with latest scientific advances incorporated; reduce the cost later. But at the outset cost experts kept whittling away at the price tag of the M-72 as some of the Army's best missile technicians put an idea through the paces of becoming a weapon.

"We point with pride to the M-72 as proof that in America we can still design a better weapon which can be turned out by our industrial capacity at a better price," stated Raymond W. Turner, Project Chief for the M-72 at AOMC.

"The most dramatic money-saving change came about in a redesignated fuze. It's called the 'holey' fuze. Value Engineering eliminated 23 parts. Their function is performed by a small hole (⅛" in diameter) in a 24th part. Thus a hole does the work of 23 parts and saves the taxpayers $1.63 per weapon.

"In this case, Value Engineering revealed that a setback lock wasn't necessary if a bit of weight was reduced at a certain point. A chain reaction was set up. If you didn't need a lock you didn't need a lanyard for it . . . nor a particular cam shaft . . . nor a closure assembly.

"The cost of enmeshing all these parts and their components was saved. And the functional value of our product was increased because the M-72 became more reliable when these parts were eliminated.

"Cost inspection of the rear-cover gasket brought about a material change. The problem was to provide a safe, pliable gasket that would stay that way at 40 below zero.

"We were using silicone rubber and it was very expensive. Laboratory technicians then came up with a new foam plastic. The gasket beats this requirement by 10 degrees as it remains soft and pliable at 50 degrees below zero. Amount saved per gasket: 45 cents.

"Similar Value Engineering was accomplished on the firing-pin housing, ignition system and carrying sling. Savings of a few pennies per weapon on an item made in high quantity.

"When the Practice Head Assembly was subjected to microscopic examination by cost analysts, a new design made possible a more uniform product and more money was saved."

The Army says the M-72, developed under contract with Hesse Eastern Division of Flightex Fabrics, Inc., of Everett, Mass., has many good military features other than easing the strain on the Nation's defense pocketbook.

One is that it is so safe that a soldier can fire it with confidence without protective clothing, whether he is in the uniform of the day in the tropics or in the Arctic.

Sex May Lead to Ruin— Cockroach Probers Hope

Sex may lead to destruction in the case of cockroaches—at least scientists charged with the responsibility of ridding the pests from Army mess halls are pursuing the possibility.

Scientists at the Pioneering Research Division, Army Quartermaster Research and Engineering Center, Natick, Mass., have discovered that the virgin female cockroach exudes a "perfume" which attracts the male.

That knowledge poses a need for additional knowledge: How to synthesize the attractant for volume production. The gas chromatograph is being used to isolate the substance from impurities, and the gas spectrometer to determine composition.

In addition to the practical goal of insect control through the use of scent as bait, scientists suspect their studies may help to determine the development of species by natural choice.

What's more, the studies involve interdisciplinary effort. Chemists, biologists and specialists in physical analysis are attacking the problem.

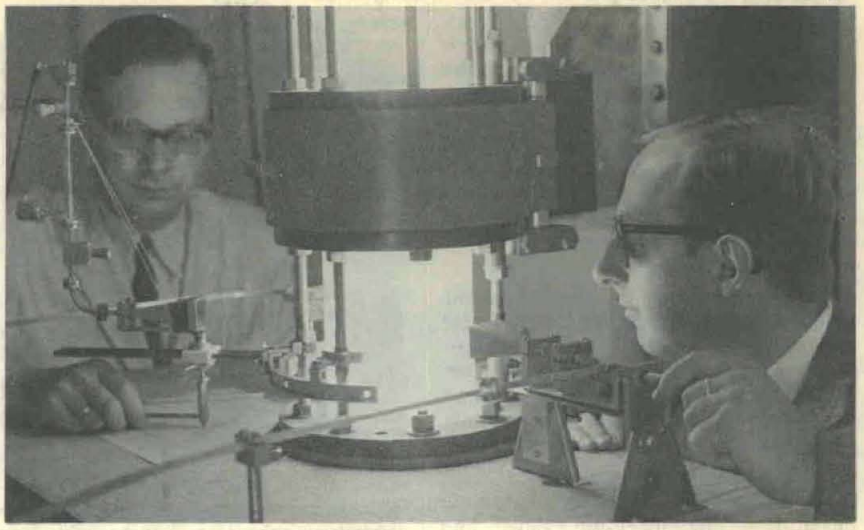
Signal Scientists Create Plasma in Laboratory

Army scientists have created a flashing column of "plasma," and are beaming radio signals through it to explore a communications problem that may plague interplanetary space ships of the future.

Plasma, a form of electrically charged matter that is difficult to produce in high concentrations on earth, makes up 99.9 percent of the substance in the universe. The sun, all the visible stars, the huge intergalactic clouds of hydrogen in space, and much of the earth's ionosphere are pure plasma. This substance can distort and block radio waves—even cause a radio blackout that could isolate a space ship from communicating with civilization for extended periods.

To create high-concentration, high-temperature plasma for the research experiments, Dr. Rudolf Buser and Paul M. Wolfert of the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J., use an 8-foot-tall condenser bank that delivers a 10,000,000-ampere jolt of electricity that lasts for a millionth of a second. The electrical surge, which for that instant is 100 times greater than the output of Boulder Dam, rips electronics from gas atoms in a thick-walled glass container.

A column of plasma three feet high and six inches wide appears with a bright flash of light.



Dr. Rudolph G. Buser (right) aims a radio signal through a column of glowing "plasma" to instruments operated by Paul M. Wolfert. The effect simulates communications phenomena which affect signals in the earth's ionosphere.

As the plasma forms and disappears, a radio signal is aimed through it and received on the other side. When the plasma column is very intense, it completely blocks the radio signal, reflecting it back like a mirror. In smaller concentrations, the plasma distorts the radio waves.

These effects are a small-scale laboratory duplication of what could happen with spaceships trying to exchange messages through vast distances. They can also reproduce what happens with familiar fade-in-fade-out short wave radio broadcasts affected by plasma in the earth's ionosphere.

The experiments yield valuable information on communications phenomena and add to basic knowledge about the structure of plasma, how it forms and decays.

Infantry Veteran Assigned to Take Command of R&D Office in Panama

Lt Col Robert T. Larson, an Infantry officer with several decorations for combat leadership and 23 years of service, reported for duty this month as the first officer of the U.S. Army Research and Development Office, Panama.

On the selection list for promotion to colonel, he was assigned to the U.S. Army Command and General Staff College, Fort Leavenworth, Kans., from 1958 until moved to Panama. At the C&GSC he served as Chief of Doctrine Section, Department of Infantry Operations and chaired several committees preparing training literature and conducting future warfare studies.

During World War II he commanded a rifle company and Infantry task forces in the five campaigns from Normandy to the Elbe River. For gallantry in action he was awarded the Silver Star Medal, the Bronze Star Medal with two oak leaf clusters, and the French Croix de Guerre with silver star. He also received the Purple Heart with oak leaf cluster.

Following the war he served for one year as Aide to General Courtney H. Hodges, First Army Commander, and from 1946 to 1949 was an instructor at the U.S. Army Infantry School, Fort Benning, Ga.

During the Korean War Lt Col Larson was Commander, Hq Company and Special Troops, Eighth Army and later Operations Officer, Plans & Operations Section, Far East Command. He received the Legion of Merit and was twice awarded the Korean Presidential Citation.

Lt Col Robert T. Larson

Other assignments include Assistant Professor of Military Science and Tactics at Oregon State University in Corvallis (1953-57) and Chief, Special Projects Branch, Plans and Operations Section, Hq Sixth Army.

Lt Col Larson holds a B.A. degree in geology from UCLA and an M.S. in resource geography from Oregon State University.

Professional Staff Recruitment

Recruitment is in progress to fill four scientific positions on the professional staff of the U.S. Army Research and Development Office, Panama. Civil Service grades established for the positions are: Chief Scientist, GS–15; Life Sciences Coordinator, GS–14; Behavioral Sciences Coordinator, GS–14; Environmental Sciences Coordinator, GS–14.

Army Chemical Research Serves Nation's Scientific Progress

Achievement of the U.S. Army Chemical Corps mission requires a diversified research program in the science and technology of subjects ranging from zoology to cloud physics. Out of this research program in recent years have come not only major contributions to the Nation's defense, but byproducts that have made substantial contributions to scientific progress and the general welfare.

One of the Corps' more recent fields of interest is represented by its biological research and development program, initiated in 1943 when Allied intelligence reports verified that the Axis powers were investigating the potential of biological agents.

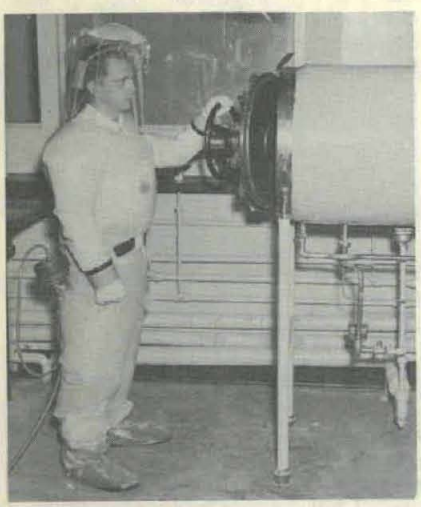
Current work in the biological field includes investigations in many related scientific disciplines such as human, animal and plant physiology, virology, bacteriology, aerobiology, entomology, plant pathology, protozoology and immunology.

Numerous byproducts of these investigations have contributed to similar research everywhere. Some examples, covering only one facet of biological research, Microbiological Laboratory Safety, are:

MICROBIOLOGICAL CABINETS. Many basic contributions to the development and acceptance of safety cabinets as standard equipment in biological operations have resulted from work originally done at the Chemical Corps Biological Laboratories.

Work done by or under contract for these laboratories has resulted in a variety of stainless steel cabinets and equipment. Non-airtight cabinets for slightly or moderately hazardous operations and gas (Freon) tight cabinets for highly hazardous operations were developed.

Standing in safety outside microbiological cabinet, technician performs hazardous operation. Safety cabinet is equipped with neoprene gloves and filter unit for exhaust air.



Plastic protective suit shown with hose and filter attached is used for protection against radioactive particles, chemical fumes, acids, bacterial aerosols, other hazardous situations.

Cabinets also were developed with attached or enclosed accessories such as elevators, dunk tanks, deep-freeze units, refrigerators, incubators, autoclaves and centrifuges. Modular cabinets systems for special operation such as the exposure and surveillance of experimental animals and for large-scale plating and counting also were developed.

Biological Laboratories personnel also participated in development work on two standard items required for safety cabinets—neoprene gloves and an effective filter unit for cabinet exhaust air.

The individual cabinets and cabinet systems not only can be used in biological operations, such as experimental work and the preparation of pharmaceuticals, but are also applicable to the processing of a variety of contaminants, toxic chemicals, radioactive materials, and other poisonous substances. These cabinets and cabinet systems now are commercially available from at least seven different manufacturers.

PERSONNEL HOODS AND SUITS. Development of head hoods and suits to provide respiratory protection for personnel working in areas where they might be exposed to biological aerosols was pioneered at the CmlC Biological Laboratories. A variety of head hoods and a complete plastic suit were developed.

Commercially available now from at least three private companies, the hoods and suits include air supply attachments, air filters, gloves and other accessories. They are adaptable for use in a number of hazardous industrial and laboratory situations where personnel protection from radioactive particles, chemical fumes, acids and bacterial aerosols is required.

CENTRIFUGE CUPS. Based on an original idea of workers at the Navy Biological Laboratories, Oakland, Calif., Army Chemical Corps Biological Laboratories personnel designed, fabricated and tested prototypes of centrifuge cups. These safety cups completely eliminated the aerosols released during centrifugation of infectious material.

Development was contracted through a laboratory equipment company, and the cups have been commercially available since 1953. Continuing study and modification have improved the safety features, and led to a variety of cup models for different types of centrifuges.

HIGH-SPEED BLENDER. Household-type blenders became standard equipment in many biological laboratories until investigators realized that they generated aerosols hazardous to operators mixing infectious materials. Experiments conducted by Chemical Corps Biological Laboratories personnel demonstrated that the main points of leakage were around the lid and the drive shaft bearing.

A Biological Laboratories machinist then produced a prototype blender with stainless steel bowl and teflon-sealed bearing unit, which eliminated the leakage. The first commercial model became available in 1954.

Subsequent modifications have resulted in a commercial model in 1960 that can be water-cooled to maintain constant temperature, has outlets to permit draining or aspiration of material without removing the lid, and can be operated for continuous-flow processing.

GASEOUS STERILIZATION. Because of their peculiar characteristics, many items of biological laboratory equipment and material are damaged, destroyed, or only ineffectively sterilized by standard methods such as steam, dry heat or liquid chemicals.

As a result of 15 years of continuous research, Chemical Corps Biological Laboratories personnel have proved the efficacy of two gaseous

sterilizers. They "rediscovered" and disseminated information concerning the bactericidal properties of ethylene oxide. Then they developed methods and inexpensive mobile equipment for biological sterilization of material ranging from delicate laboratory equipment to "6 x 6" Army trucks. Currently they are experimenting with ethylene oxide as a biological sterilizer for interplanetary space vehicles.

The second gaseous sterilizer, beta-propiolactone, had been used by other workers in aqueous solutions. Chemical Corps scientists were the first to investigate and demonstrate its sterilizing potential in gaseous form.

Although it acts less rapidly and is not as penetrating as ethylene oxide, beta-propiolactone is particularly well-suited to large-area sterilization. It has been used successfully to sterilize areas such as a 2-story Army barrack, a furnished hospital dayroom, an Army hospital ward, and an animal housing area. At the Biological Laboratories it is being used for the sterilization of aerosol chambers, rooms and large buildings.

ULTRAVIOLET RADIATION. A continuing research program, now in its eighth year, has been conducted at the Chemical Corps Biological Laboratories to obtain data as a guide in developing, designing and testing UV installations suitable for an infectious disease laboratory

Primary emphasis is on laboratory personnel protection and the microorganic isolation of exposed experimental animals. The program has generated much pertinent information on UV sterilization of large volumes of air, UV effects on laboratory personnel, and the maintenance of UV installations.

Operating standards and improved designs for UV installations for air locks, doorways, walk-in incubators and laboratories have been developed. Other UV developments include a small pass-through chamber for sterilizing single sheets of paper, a larger pass-through chamber for bulkier objects, a sterilizer for small volumes of air, a portable floodlight, UV-protected animal cage racks, and an installation to minimize contamination for soiled laboratory clothing placed in laundry discard racks prior to autoclaving.

A comprehensive report covering the UV research program, including the results of an extensive literature survey, is available from the Armed Forces Technical Information Agency and from the Office of Technical Services, Department of Commerce. The report is titled "Use of Ultraviolet Radiation in Microbiological Laboratories."

Centrifuge safety cups completely eliminate aerosols released during centrifugation of infectious material.

Queries concerning various aspects of microbiological laboratory safety, including those discussed here, may be addressed to the Office of the Safety Director, U.S. Army Chemical Corps Biological Laboratories, Fort Detrick, Frederick, Md.

QM R&E Command Recognizes Leaders for Assistance on Industry Day

Outstanding Civilian Service Medals were presented to six representatives from the industrial, educational and communications fields as one of the highlights of Industry Day at the Quartermaster R&E Command, Natick, Mass.

The awards recognized contributions to Army R&D activities involving technical and scientific knowledge. Brig Gen Merrill L. Tribe, CG of the QM R&D Command, made the presentations. Recipients included:

- Karl E. Prindle, vice president, product development, Dobeckmun Co., Cleveland, Ohio, member and chairman of National Research Council-National Academy of Sciences Committee on Container Development and Subsistence Packaging for the Quartermaster Corps., U.S. Army, from 1958 to 1962.
- Ernest J. Chornyei, president, Bradford Dyeing Association, Westerly, R.I., advisor to the Quartermaster Corps on the application of dyes and textile functional finishes to military textiles.
- Lawrence Bernstein, chairman of the board, Tailorbrooke Clothes, Inc., Kearney, N.J., for services to the Quartermaster Corps in development of uniforms.
- Dr. Walter M. Urbain, director, engineering research, Swift & Co., Chicago, Ill., member and chairman of National Research Council, National Academy of Sciences Committee on Radiation Preservation of Foods for the Quartermaster Corps, during the period of 1956-1962.
- Dr. William H. Weston, Jr., Emeritus Professor of Botany, Harvard University. He was instrumental in the establishment and staffing of the original Quartermaster Tropical Deterioration Research Laboratory in 1944, and for many years served as a member and chairman of the National Academy of Sciences-National Research Council advisory committees to the U.S. Army Quartermaster Corps. In addition, he was a consultant to the Pioneering Research Division, QM R&E Command.
- Jules Madey, amateur radio operator of Station K2KGJ, Clark, N.J., whose contribution of time and effort during the International Geophysical Year resulted in the establishment and maintenance of the most successful micrometeorological program of profile measurements of temperature and wind ever completed by the Quartermaster Corps. Electronic difficulties were solved through the initiative of Mr. Madey, who contacted engineers and arranged communications between them and the Quartermaster Corps scientists in the Antarctic via his station.

Over 900 guests attended the 2-day conference whose theme was "Interrelationship of Industrial and Military Research and Development in Industrial Mobilization."

Sponsored jointly by the Defense Supply Association, New England Chapter, and the Research and Development Associates, Food and Container Institute, Chicago, Ill., the event emphasized current research and development programs in support of Quartermaster equipment.

The Industry Day open house program is in keeping with the Department of Defense policy to present those branches of industry vitally concerned with the national defense program, and especially Quartermaster Corps suppliers, with a first-hand look at accomplishments and objectives in providing new and improved Armed Forces equipment.

NSA Deputy Director Cited

The Department of Defense Distinguished Civilian Service Award was presented July 19 to Dr. Louis W. Tordella by Assistant Secretary of Defense John H. Rubel on behalf of Secretary of Defense McNamara.

Dr. Tordella, appointed Deputy Director of the National Security Agency in 1958, received the award, the highest honor conferred on civilian employees by the Department of Defense, in recognition of "his many services to the Department of Defense and his country."

Army Turnover to Air Force Recalls Hardship Of Alaska Communication System Development

Signal Corps Office, Alaska—April 22, 1901

When the Alaska Communication System was transferred in July from U.S. Army to Air Force supervision, it was an occasion to review history of hardy and devoted service in the best of American frontier traditions.

Maintenance of law and order among rough settlements in the primitive Territory of Alaska, amid the turmoil of one gold rush after another, required wire communications. Thus, in 1900 the Army, directed by Congress, began to erect telegraph lines.

Progress was slow and difficult until, in the dead of winter 1901-1902, a purposeful Army lieutenant, William "Billy" Mitchell, only 21 years old, was sent by the Chief Signal Officer, Brig Gen Adolphus Washington Greely, to speed the work.

Despite heavy snows, avalanches, and intense cold of minus 70 degrees, Mitchell's men connected the vital system. He gained their loyalty and kept them too busy to look at thermometers.

Thus, in a little over three years, the U.S. Army Signal Corps met the terms that Congress had set. Nearly 2,000 miles of telegraph lines had been laid in exceedingly difficult circumstances, under the forceful leadership of General Greely, himself a famous Arctic explorer.

Difficult maintenance and operational duties continued to tax the soldiers. Storms, ice and snow broke the poles and wires. Every 40 or so miles, the U.S. Army Signal Corps placed cabins and maintenance crews who patrolled the lines year round. Operators, some of whom lost their lives in the work, maintained lonely vigil at their keys, sounders and batteries. They kept open the lines which served both the military and civilian needs of the wild and sparsely-settled Territory.

Just three years after the beginning of this work, General Greely employed the new communications medium, wireless, to form the earliest regular radio circuit in North America. Carrying messages across Norton Sound, it constituted an essential link in the communication system that the Army built in Alaska.

By 1907, the Army operated 2,500 miles of ocean cable serving Alaska, in addition to the landlines and radio circuit.

By the mid-1930's, when radio circuits replaced the cables and nearly all wire lines, the title, Alaska Communication System, was born. ACS continued to be manned by officers and civilians, assisting in 1935 in the recovery of the bodies of Will Rogers and Wiley Post, whose airplane crashed in northern Alaska. The system always handled more commercial message traffic than military and Government, and at moderate fees.

During World War II, great quantities of new high capacity radio facilities were installed, together with navigation and weather systems for military aviation, and Army radar for aircraft warning. Undersea cables were returned to service and a direct landline along the new Alcan Highway was constructed.

Over the years since World War II, enormous Air Force communications facilities have arisen in Alaska.

The Alaska Communication System, created by the Army from an icy wilderness in 1900, will aim to continue its outstanding service to the new State of Alaska. Retaining its name and personnel, it will be linked to the larger Air Force circuit to give better service in the future.

Capt "Billy" Mitchell

Chemical R&D Lab Employees Get Superior Ratings

Sustained Superior Performance Awards were presented recently to personnel of the Chemical Research and Development Laboratories.

Richard L. Campbell and Woodrow W. Reaves, Directorate of Research, each received $250—respectively for outstanding performance in all phases of the computer program, and for research on new pyrotechnic compositions and devising new methods for dissemination.

Franklin O. Monks, Program Coordination Office, was awarded $150 for anticipating problem areas in the field of financial management and recommending action to prevent accounting discrepancies.

Emmett F. Moore, Directorate of Development, received $150 for outstanding performance in the creation of an exemplary supply system for his Division.

Mrs. Mary Helen Blackmon, Directorate of Technical Services, was awarded $100 for her work on major film productions assigned to Graphic Arts Branch.

Mrs. M. Joanne Beverati, Directorate of Medical Research, received $100 for work which greatly contributed to the accomplishment of the mission of Clinical Research Division.

USAERDL Employees Win Performance Awards

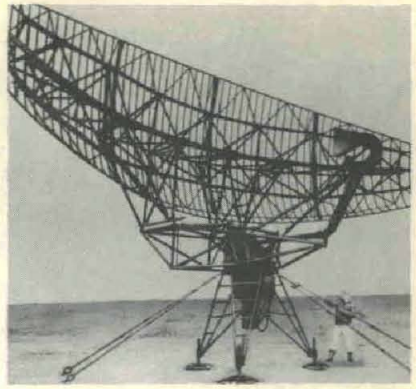
Outstanding and Sustained Superior Performance awards were presented recently to five employees of the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va. Col Philip G. Krueger, Deputy Director, presented awards.

Recipients of both type awards were Andrew Weber, Ralph E. Hopkins, Myrain Y. Harvey and Darald C. Fink. Mr. Weber received $300 in recognition of his work as Assistant Chief of the Civil Department; Mr. Hopkins received a similar amount for his work in the Electrical Power Branch, and Mr. Fink, employed in the Heating and Air Conditioning Branch, received $250. Mr. Harvey was given a $150 award for his work in Engineer Standardization Office.

Sustained awards were made to: Robert C. McMillan, $250, Basic Research Group; Chester R. Gurski, $250, Heating and Air Conditioning Branch; John B. Forlini, $200, Information Resources Branch; Walter L. Wilson and William J. Walter, $200 each, Developmental Fabrications Branch; Harold E. Kyles, $200, Engineering Department; William W. Erbe, $200, Physics Research Laboratory; William F. Zaff, $250, Robert H. Gass, $200, Mechanical Engineering Branch; Warner L. Birckhead, $150, Facilities, Planning and Maintenance Branch; Mrs. Virginia L. Duvall, $150, Climatic Research and Test Branch; Mrs. Helen Miller, $150, Technical Service Department; Mrs. Elizabeth Lassiter, $100, Information Resources Branch; and Donald K. Sundquist, $100, Security Office.

More than 30 college students employed this summer as scientific and engineering aides at the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., are shown during orientation tour. In addition to visiting facilities of the Laboratories, the students viewed a film depicting various USAERDL developments and heard Dr. George W. Howard, Technical Director, outline the mission of the Corps of Engineers, principal field agency for the research and development of new material, methods, and techniques required for military operations.

Portable Antenna Serves Missile Monitor System



Missile Monitor OA-1227/TPS.

The first of a quantity of giant radar antennas has been delivered to the Army for use in Missile Monitor air defense installations.

Army test reports indicate radar performance has been greatly improved by the antenna. A high gain results from its narrower beam.

A reflector measuring 40 x 11 feet makes it the Army's largest portable, tactical antenna. Adaptable to any radar in its frequency bond, it can be segmented and transported by truck or flat car. A team of eight men can set it up in approximately four hours.

Unit cost is approximately $66,000, subject to renegotiation. Designated the OA-1227/TPS, the antennas were originally ordered under a $2.6 million Signal Corps contract with Hazeltine Corp. in 1960.

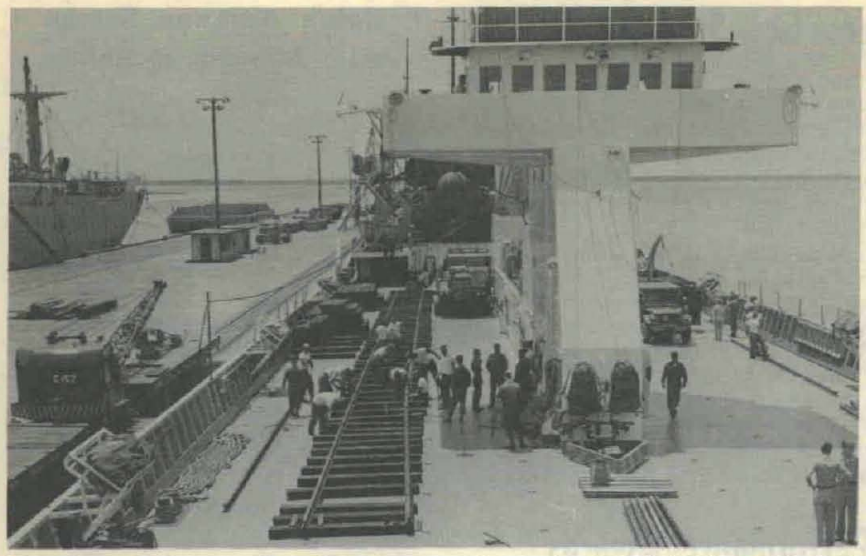
USAEPG Tests Weather Unit For Remote Area Service

A 70-pound portable weather station which will operate unattended in remote areas for 30 days is being tested at the U.S. Army Electronic Proving Ground, Ft. Huachuca, Ariz.

Because it records wind speed and direction, barometric pressure, temperature and humidity on punched tape which can be readily fed into a digital data computer, it is considered an important step toward the automation of weather data collection.

If desired, this information can be immediately transmitted to a central station by wire or radio. Weather stations now in use, besides lacking this adaptability to computer work, must be checked daily or weekly.

The unit was manufactured by the Advanced Instrument Co., Emeryville, Calif., according to specifications provided by AEPG Meteorology Dept.



U.S. Army Transportation Corps personnel construct rail tracks on deck of BDL "Page" for shipment and unloading of gun tubes at Barbados, W.I.F.

Operation HARP, Utilizing Big Guns for Research, Earns U.S. Army Canadian Goodwill for Assistance

Big guns are finding a peaceful purpose in high altitude research under a joint McGill University of Canada-U.S. Army Project, involving one of the most difficult logistical feats ever performed on a landing beach.

Project HARP (High Altitude Research Program) entails transportation of two 140-ton, 16-inch naval gun tubes from Hampton Roads (Va.) Army Terminal to Barbados, West Indies Federation, and emplacement on a plateau 80 feet above sea level about 2½ miles from the beach.

Seventy-five feet long and five feet in diameter at the breech, the gun tubes have been specially smooth bored for their scientific mission —that of exploring the "high sky," at altitudes ranging from 60 to about 175 miles. The project carries the enthusiastic support of Barbados governing officials.

Dynamic as is the highly imaginative concept of Project HARP, its execution called for equally enterprising planning by the U.S. Army Transportation Corps logistics experts in cooperation with the U.S. Army Research Office, Office of the Chief of Research and Development. The challenge was new, the execution unique.

Canadian newspapers have acclaimed the role of the U.S. Army in Project HARP, including the arrival of the gun-carrying all Army-manned 338-foot beach discharge lighter *Lt Col John U. D. Page* at Barbados July 24 at 8 a.m. In page 1 stories they hailed the U.S. Army for helping Canada to assume an important place in high altitude research.

Assistance of the Army Transportation Corps was requested when it was learned that the 12-foot depth of the channel through reefs to the landing site prohibited the use of deep-draft vessels. Although the *Page* is designed for shallow-draft operations and has a bow ramp for beach discharge, it was necessary to blast a 150-foot-wide channel through reefs to a depth of 16 feet.

Loading of the big guns, together with timbers, a 40-ton crawler crane, rough terrain forklifts, 50-ton capacity blocks, girders, rails, cables and miscellaneous gear—a total of nearly 700 tons, and the heaviest cargo the *Page* ever had carried—was in itself no small feat.

Rails were fitted to the deck of the *Page* and the gun tubes were loaded on five heavy duty railroad flatcars. Additional rails and other equipment for the unloading operation were positioned to be immediately available when the vessel pulled up on the beach at Long Bay, Barbados.

The careful planning was necessary because Barbados officials could provide no crane or equipment capable of lifting more than 10 tons, and no other unloading facilities were available at the beach.

A ramp was constructed at the mean waterline of the beach, 15½ feet above the forefoot of the vessel. This ramp reduced the rail gradient from 18 to 12 percent up a row of cliffs about 40 feet high to a plateau approximately two miles from the McGill University High Altitude Research Facility.

Prof. A. R. McKay, McGill University project engineer, headed an advance team that helped to surmount the first major obstacle, that row of cliffs, by blasting rocks and building a roadbed to accommodate the "railway."

The critical part of the operation came when the flatcars, with their 280-ton burden of guns, had to be off-loaded from the *Page* and pulled up the steep grade to the plateau. Bulldozers, the 40-ton crane, block and tackle and the forklifts are being used in a "leap frog" technique—that of lifting track from behind and laying it ahead of the cars as they advance, since the supply of track is about 900 feet.

After off-loading the moving equipment, the *Page* left Long Bay to return to its deep harbor at Bridgeport —to avoid the possibility of being caught in one of the storms of the hurricane season — until the ramp could be completed and the rails laid for off-loading and movement of the flatcars.

As this publication went to press, the most difficult part of the operation was well advanced and proceeding according to plan. But the big guns are not expected to be emplaced to begin sending their probes of the high sky with about 500 pounds of instrumentation until October.

The gun tubes will be used in a near vertical position to propel McGill University's specially designed vehicles, Martlet I and II, instead of conventional projectiles. These vehicles will carry payloads from 60 to about 125 miles. Martlet III, still in the concept stage, will be designed to reach an altitude of about 175 miles.

Among McGill objectives will be to learn a great deal more about the physical and chemical properties of the upper atmosphere, meteorological phenomena, and problems associated with high speed flight or aircraft type vehicles, as well as entry of space vehicles in the upper atmosphere.

A Project HARP brochure prepared by McGill University scientists credits the U.S. Army Ballistic Research Laboratories at Aberdeen Proving Ground, Md., with a major assist in making possible the execution of the plan they announced in March 1962.

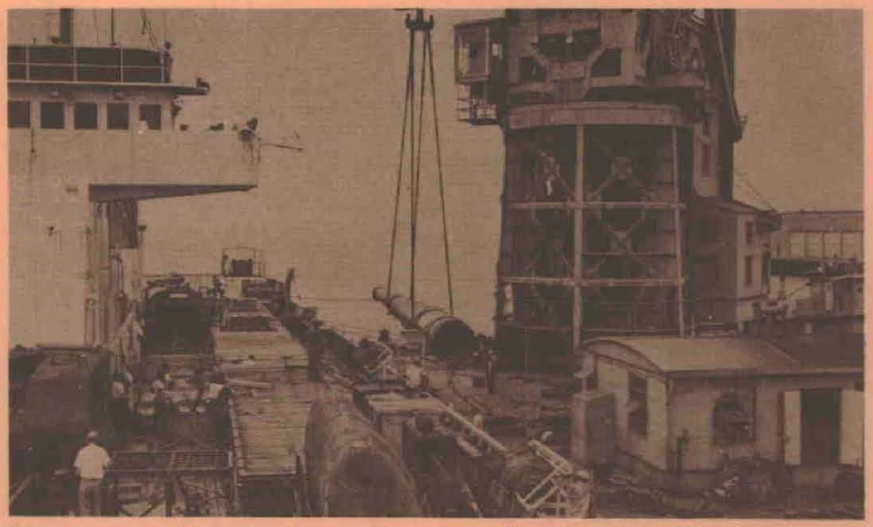
The proposal originated with Dr. G. V. Bull, professor of engineering science at McGill. Working with the cooperation of the Army Ballistic Research Laboratories, he confirmed the merit of his theory that anti-aircraft

guns could be used to launch scientific vehicles into space.

The University of Toronto, Institute of Aerophysics, then collaborated in the proposed program to the extent of obtaining, through the Office of Naval Research and the U.S. Navy Surplus Weapons Branch, one of the large gun tubes which the U.S. Army Transportation Corps moved to Barbados. The U.S. Army Ordnance Ballistic Research Laboratories obtained one complete gun assembly and arranged for smooth bore drilling.

Preliminary experiments at Barbados, which have produced results supporting the soundness of the principles employed in the gun-fired probes of the atmosphere, have utilized a 4-inch vertical firing Naval gun supplied through the firm of Computing Devices of Canada, Ltd.

Additional experimental firings using the 4-inch gun will precede the initiation of tests employing the 16-inch guns. The 4-inch probes are expected to reach an apogee of 125,000 feet. One of the aims is to determine whether flares exploded at the apogee can be detected optically with ground station kinetheodolites.



Heavy crane at Hampton Roads (Va.) Army Terminal lifts 16" gun tube onto flatcars mounted aboard the U.S. Army Beach Discharge Lighter "Page."

Authorities at McGill University decided to locate the High Altitude Research Facility at Barbados to supplement the University's Bellairs Research Institute and Brace Experiment Station, both on the island. Contributing factors included:

- Weather conditions in that area impose little limitation on experimental work in the upper atmosphere, and there is a great need for such data in the equatorial regions.
- Barbados is right in the middle of the "world's best tracking station, established by the United States Air Force." [The U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J., has furnished a 33A1C 90 mm. fire control system that also will be used for tracking.]
- Finally, "the Government of Barbados most enthusiastically supported the plan and helped the establishment of the facility in many ways."

Air Force Plans Facility For Research at Academy

Army R&D officials have noted with more than passing interest the establishment announcement of a basic research laboratory at the U.S. Air Force Academy near Colorado Springs, Colo., effective about Oct. 1, under supervision of the Air Force Office of Aerospace Research.

The Department of Defense announcement stated that the expansion of existing facilities, and the co-use by the Academy and OAR of expensive research equipment already in the Academy, will provide a "first-rate in-house research laboratory at low cost."

While increasing the Air Force in-service capability to conduct basic research, the laboratory will enable selected members of the Academy's faculty and outstanding cadets to collaborate with OAR scientists in programs of interest to the Air Force.

In providing an opportunity for outstanding cadets to pursue scientific research interests, the Air Force anticipates appreciable results in meeting an increasing need for scientifically trained officers. Talented cadets will be encouraged to enter scientific careers.

An outstanding officer-scientist will command the laboratory. It will have an authorization of 37 personnel, including 15 research scientists, four administrators, and two Public Law-313 top scientists.

DOD Sets Up Simplified Transport Control System

The Department of Defense has announced the establishment of a simplified system of transportation documentation control and identification of worldwide military cargo shipments.

The system, the Military Standard Transportation and Movement Procedures (MILSTAMP), established in an Instruction (4540.2), provides the means for the applying of high-speed punch card and computer systems to transportation documents. MILSTAMP substitutes a single document for 90 previously used.

This document, which can also be used manually, accompanies a shipment from point of origin to destination and eliminates the practice of adding another document at each point of trans-shipment. The new MILSTAMP document can be radioed and cabled, thus keeping pace with the speed of modern transportation.

The document will function as an advance advice of shipment, an air way bill, a highway way bill, an air or ocean manifest, a cargo delivery receipt, and an outturn report, and will bear a number identical with the original cargo requisition number.

MILSTAMP, the result of studies by a joint team of the O.S.D., Army, Navy, Air Force, Military Sea Transportation Service, Military Air Transport Service, and the Defense Traffic Management Service, will substantially reduce administrative costs caused by multiple redocumentation. It increases the efficiency of movement and control of DOD traffic by more precise and accurate information in advance of traffic.

MILSTAMP is also expected to increase the efficiency and flexibility of transportation capability by providing greater opportunity to pre-plan the use and positioning of equipment. It will provide a worldwide basis for policing the performance and responsiveness of the DOD supply and transportation systems in meeting requirements of operating forces, and provide more timely information to transportation operators for determining requirements and procuring service from commercial sources.

The MILSTAMP instruction, which is complemented by the MILSTAMP Operating Manual, will be fully implemented not later than July 1, 1963.

President Cites WRAIR Scientist for Medical Research

Dr. Donald E. Gregg, world-renowned Chief of the Department of Cardio-Respiratory Diseases at Walter Reed Army Institute of Research, received the President's Award for Distinguished Federal Civilian Service Aug. 7.

Presented the same honor at the ceremony in the White House Rose Garden were Dr. Frances Kelsey, who prevented the infant-deforming drug thalidomide from going on sale in the U.S., and four Federal career employees.

- J. Stanley Baughman, President, Federal National Mortgage Assn., Housing and Home Finance Agency.
- Robert E. Gilruth, Director, Manned Spacecraft Center, National Aeronautics and Space Administration.
- Waldo K. Lyon, Head, Submarine and Arctic Research Branch, U.S. Navy Electronics Laboratory.
- Llewellyn E. Thompson, Jr., Ambassador to the Union of Soviet Socialist Republics, Department of State.

President Kennedy, in presenting to Dr. Gregg the highest honor the Government can give to a Federal Career employee, cited him for "major contributions to medical knowledge and thereby to the welfare of humanity."

In a memorandum informing the heads of executive departments and agencies of his selections for the 1962 President's Award for Distinguished Federal Civilian Service, the President stated:

"In their respective fields, each of these men has made exceptional contributions to the current public good and to the national interest. Each has demonstrated his creative imagination, his courage in pursuing high goals, and his superlative competence in reaching important Government objectives. All richly merit the highest kind of praise and honor the American people can give their public servants.

"I know you will want to join me in expressing profound appreciation to these men who have displayed in such great measure the best qualities of our Federal career service. They exemplify in the highest degree the qualities that are applied to many other Federal Tasks throughout our Government."

Assistant Secretary of the Army (R&D) Dr. Finn J. Larsen, Army Chief of Research and Development Lt Gen Dwight E. Beach, Army Surgeon General (Lt Gen) Leonard D. Heaton, Brig Gen Robert C. Blount and Dr. Marion B. Sulzberger were present to join in the tribute to Dr. Gregg. General Blount is Chief and Dr. Sulzberger is Technical Director of Research of the U.S. Army Medical Services Research and Development Command.

CITED BY PRESIDENT KENNEDY for a notable contribution to "the public good . . . and national interest," Dr. Donald E. Gregg receives the Chief Executive's congratulations for his research in cardio-respiratory diseases at Walter Reed Army Institute of Research. Secretary of the Army Cyrus Vance (left) and Robert C. Weaver, Administrator of the Housing and Home Finance Agency (center), participated in the ceremony on White House lawn.

Dr. Gregg has gained international acclaim for his research and development of equipment and techniques of treating diseases of the heart. Recognized as one of the world's foremost physiologists, he has made such outstanding contributions as:

- The Gregg Manometer for measuring blood pressure.
- The rotometer for measuring blood flow.
- The densitometer for determining cardiac output and coronary flow.

Holder of four degrees from Colgate University and the University of Buffalo, Dr. Gregg has served in the U.S. Army Medical Services since 1946—first as Chief Research Physician at the Medical Research Laboratory, Fort Knox, Ky., and since 1950 as Chief of the WRAIR Department of Cardio-Respiratory Diseases.

(For a detailed biography of other honors conferred on Dr. Gregg, other high points of his career, and professional society affiliations, your attention is invited to the May 1962 issue, page 30 of this publication.)

CRD Message to Laboratory Chiefs Urges In-House 'Pursuit of Excellence'

(EDITOR'S NOTE: Dr. Gregg's research, outstanding as it is, finds many counterparts in virtually all fields of science related to the Army's mission of national defense. Army Chief of Research and Development Lt Gen Dwight E. Beach late in July addressed a letter to the Chiefs of all Department of the Army R&D in-house laboratories and arsenals, as follows.)

"The President and the Secretary of Defense have vigorously acknowledged the importance of federal laboratories such as yours. They have placed new emphasis on in-house establishments as the focal points for Defense Department research and development.

"Realizing the great value of the laboratories, yet sensing weaknesses in them, the Secretary of Defense has directed that positive actions be taken to augment their effectiveness. You will receive copies of the Secretary's directives as inclosures to a letter from Dr. Larsen; specific actions will be enunciated shortly in R&D regulations.

"I am sure that the renewed appreciation of our laboratories by the highest authorities is as heartening to you as it is to me. I have long considered that the in-house laboratories are the spearhead of the entire R&D organization. However, I have also felt that our pursuit of excellence for these facilities has not been as unrelenting as it might be. Unquestionably, the quality of our R&D depends upon the quality of our laboratories and their competence remains largely in your hands, no matter what program is prescribed by higher authority. You must attain the highest standards or we will fail.

"I urge that directors who have not yet done so strive to achieve for their laboratories a reputation for excellence in a few fields of scientific or technical endeavor. Once gained, such an eminence provides impetus for the general advancement of the laboratory, yielding dividends in the recruitment of talent and the exchange of ideas worldwide.

"I intend to prosecute the Secretary of Defense's program for the enhancement of in-house laboratories whole-heartedly. I ask similar support from you—and I solicit your suggestions."