

NEW LAB ADDITION—The Army Missile Command's Inertial Guidance and Control Laboratory wing to its new Research and Development Building is shown here in an artist's concept. The new wing is in the foreground. The other two wings have just been completed and will be occupied starting in a few weeks. The Guidance and Control Laboratory has been designated as a national center for Army research and development of inertial guidance and navigation systems for Army missiles, aircraft and land vehicles.

Multi-Million Dollar Laboratory Will Be Built

The Army Missile Command said it will start work on a new multi-million dollar laboratory for the development of extremely accurate inertial guidance and navigation systems for Army missiles, aircraft and land vehicles.

A military construction bill, signed by President Johnson the past week, included \$3.2 million for the building.

The laboratory will pull together Army inertial guidance research and development projects from all over the nation.

The new Inertial Guidance and Control Laboratory will be built as an addition to a \$5.8 million research and development facility just completed by the Missile Command.

Among other research tools, the new laboratory will house extensive testing facilities for such precision instruments as gyroscopes and accelerometers. These will allow scientists to work on delicate guidance systems unaffected by even the minute movements of

the earth.

Inertial guidance and navigation systems placed in a vehicle such as a missile, guide its movements according to measurements made on board the vehicle and compared to a preset "memory" placed in the vehicle's control system before it is launched.

Inertially guided missiles therefore require no radio or radar control from the ground and are invulnerable to any known form of jamming.

The Inertial Guidance and Control Laboratory at Redstone last year was designated as a national center for development of inertial systems for Army missiles, aircraft, drones, land navigation, inertial land surveying and for explosive fuzing. The laboratory is a part of the Army Missile Command's Directorate of Research and Development.

With the establishment of the laboratory as a center for Army inertial guidance research and development (See LABORATORY on Page 3)

Arsenal-Wide

Spot News

Dial 877-2164

The Redstone Rocket

Published by Jack W. Hoffhaus, Hartselle, Ala., a private individual in no way connected with the Department of the Army. Opinions expressed by the publishers and writers herein are their own and are not to be considered an official expression by the Department of the Army. The appearance of advertisements in this publication does not constitute an endorsement by the Department of the Army of the products or services advertised.

VOL. XII; NO. 34

REDSTONE ARSENAL, HUNTSVILLE, ALABAMA

JANUARY 8, 1964

GENERAL ZIERDT RECEIVES SECOND STAR

New Policy On Weather Announced

Federal employees of the Army and National Aeronautics and Space Administration at Redstone Arsenal have been advised that severe weather may no longer result in excused absence from work.

Announcements given all personnel informed them it was essential that they prepare and equip their vehicles at the earliest possible date so that they may travel positively and safely under emergency conditions.

Similar messages issued by Dr. Wernher von Braun, director of the Marshall Space Flight Center; Maj. Gen. John G. Zierdt, Commanding General of the Army Missile Command, and other agency heads said the excused absence policy, a custom in recent years, must be re-evaluated in the interest of economy and today's requirements.

At the same time, Dr. von Braun and Gen. Zierdt sent a joint letter to Governor George C. Wallace asking his cooperation in providing the most expeditious opening of snow blocked state roads. Similar letters were sent over the signatures of Harry H. Gorman, von Braun's deputy for administration, and Col. Thomas W. Cooke, Commander of the Army Missile Support Command, to all county commissioners and municipal officials in North Alabama asking their assistance.

Twice this winter heavy snow falls have compelled officials of the federal agencies to close local facilities. The record snow storm last week would have resulted in an additional day of lost work had January 1 not been a federal holiday.

In the advisory message given all federal personnel, the necessity (See WEATHER on Page 3)



IT'S MAJOR GENERAL NOW—1964 started with a promotion for Maj. Gen. John G. Zierdt, Commanding General of the Army Missile Command. Mrs. Zierdt and Lt. Gen. Frank S. Besson, Jr., are shown pinning the new stars on Gen. Zierdt's shoulders. The General's first star was also presented in December 1960, during a previous tour of duty at Redstone. After Friday's presentation, Gen. Zierdt said, "I wouldn't have gotten my first star if it had not been for many of the people in this room. I feel I am wearing this second star for Redstone."

He Credits People Here

A new star was pinned Friday on the shoulders of Brig. Gen. John G. Zierdt, Commanding General of the Army Missile Command.

His promotion to Major General was made official when Mrs. Zierdt and Lt. Gen. Frank S. Besson, Jr., added the second star to the one he already wore.

Gen. Besson is Commanding General of the Army Materiel Command, Washington, D. C. He flew to Redstone Arsenal to make the presentation to Gen. Zierdt who commands one of the seven major commodity commands under AMC.

Looking on during the ceremony were three of the Zierdt children: John G., Jr., a cadet at the U. S. Military Academy; Candy and Michael. Another daughter, Vicki, was in Grantville, Pa., visiting Gen. Zierdt's father, Col. W. Henry Zierdt, USA, Ret.

More than 100 members of Gen. Zierdt's staff, Project Managers, Directors of the Missile Command's Directorates and officials from other Army elements at Redstone Arsenal were also on hand. The presentation was made in the General's Conference Room at Missile Command headquarters.

Immediately after the bright, new stars were placed on his shoulders, Gen. Zierdt said:

"I wouldn't have gotten my first star if it had not been for the fine work of many of the people in this room. I feel I am wearing this second star for Redstone."

Gen. Zierdt has been Commanding General of the Missile Command since September 23, 1963. He is responsible for an organization of about 12,000 military and civilian personnel centered at Redstone Arsenal and Watertown Arsenal, Mass.

Under his management are all Army missile and rocket development programs.

Before his present assignment, Gen. Zierdt was Deputy Director, (See SECOND STAR on Page 3)

\$19 Million Earmarked For Missiles

Army missile system contract awards totaling more than \$19 million announced Monday include almost \$2 million to Rohm and Haas Company at Huntsville.

The Rohm and Haas contract funds research on solid propellants for guided missiles. The work will be performed in government owned but contractor operated facilities at Redstone.

The contract will be administered by the Army Missile Command's Procurement and Production Directorate.

The other awards announced will cover work associated with the Sergeant, TOW, Shillelagh and Hawk missiles.

The largest contract, \$10,725,000, went to the Sperry Utah Company

for production of Sergeant missile equipment. The contract, which calls for production of guidance body sections and control surface assemblies, is the first firm fixed price contract of any significant amount ever awarded for Sergeant equipment.

The Procurement and Production Directorate at the Army Missile Command, Redstone Arsenal, negotiated and executed the contract. Col. J. M. Loomis, Jr. is the Sergeant Project Manager who will retain technical administration of the contract. The balance of the administration will be transferred to the Los Angeles Procurement District.

The Raytheon Co. received a (See MISSILES on Page 3)

Polio Vaccinations Scheduled Sunday

The third and last polio vaccine immunizations in the Huntsville — Madison County area will be administered between 11 a.m. and 4 p.m. Sunday at the same points of distribution the two previous immunizations were taken.

Approximately 95,000 persons have been processed for the first two immunizations.

Types I and III of the Sabin vaccine have been administered. This will be the Type II vaccine.

The Redstone Rocket

The Redstone Rocket is published weekly, on Wednesdays. The publisher will receive editorial content for publication in the Rocket only through the Information Office, Army Missile Command, Redstone Arsenal, Ala., Bldg. 5250, Room A-136, Extension 876-4161.

All advertising copy and payments therefor are received by Mrs. Zillah T. Heath, Huntsville, Ala., P. O. Box 346, telephone 534-4701, as representative of the publisher. Advertising deadline—both display and wanted—is noon of Friday before publication. The Redstone Rocket is distributed free of cost to personnel at Redstone Arsenal. Mailing rates off post for the Rocket are \$6.36 a year, or \$3.50 for six months, tax included. Mailing arrangements may be made with the publisher, P. O. Box 520, Huntsville, Ala.

Rocket Ruminations

I hate quotations. Tell me what you know.
—Ralph Waldo Emerson

Look Backward, Forward!

TO: ALL PERSONNEL

As we begin a new year, I want to express my appreciation to each of you for your help in getting the Missile Command's Cost Reduction Program off to a good start.

President Johnson and Secretary of Defense McNamara have recently emphasized the need for even greater economy in the accomplishment of our missions.

We will respond to their requests by continuing to increase our output with a corresponding decrease in costs.

Although we take a moment now to review our accomplishments of yesterday, we want to always devote ourselves to tomorrow.

Again, I extend my personal appreciation for your efforts. Now let's go to work and see what we can do.

JOHN G. ZIERDT
Major General, USA
Commanding General



Congratulations And Thanks

The Rocket adds its word of "well deserved" to General Zierdt.

Of course the second star on our Commanding General's shoulder is not news to us. We have known it was coming for several months. But we are very glad the New Year brought us a spanking new Major General.

(We might add that many of us have known General Zierdt would get a second star for a number of years. It was just a question of when and where.)

Especially heartwarming to us was John G. Zierdt's first comment as a Major General in the United States Army:

"I wouldn't have gotten my first star if it had not been for many of the people in this room. I feel I am wearing this second star for Redstone."

And General, we feel you were thoughtful to include the people who work under your direction at a time of personal triumph.

The Rocket thinks that the fact you credit those who work with you for a part of your success presents a challenge to us in our future efforts together.

INCENTIVE AWARDS

SUGGESTIONS

Doris W. Recob, Army Missile Command, Letter of Appreciation—this suggestion resulted in heater blankets being used if the need should arise.

Kathryn B. Nassif, Army Missile Command, Letter of Appreciation—this suggestion resulted in discontinuing the policy of destroying carbon paper and typewriter ribbons as classified waste although classified material has not been typed.

Barney E. Kemp, Army Missile Command, Letter of Appreciation—this suggestion concerning blocking in the under portion of the ramp at the north entrance of building 5681 has resulted in the area being cleaned up and it is reported that continuing efforts will be made to keep this area clean although the under portion of the ramp will not be blocked in.

Kathryn W. Dallas, Army Missile Command, Letter of Appreciation—this suggestion concerning rotary files being obtained for use in Status Control has resulted in changes being made in the filing system even though the rotary type files will not be obtained.

William E. Donehoo, Jr., Army Missile Command, Letter of Appreciation—this suggestion resulted in a cross walk sign located on the service road passing between building 4488 and building 4484 being removed and put into use at some other location.

Miles R. Hardenburgh, Army Missile Command, Letter of Appreciation—this suggestion resulted in the requirement for a supervisor's signature on RSA Form 196 being deleted and this responsibility may now be delegated to a timekeeper.

Oliver W. Jackson, Army Missile Command, Letter of Appreciation—this suggestion resulted in an unused radio antenna and feed in lines removed from the east end of wings A & B of building 4488.

Gail D. Birdsong, Army Missile Command, Letter of Appreciation—this suggestion resulted in the Army Inspection Office at Thiokol being placed on distribution for the Daily Bulletins, Redstone Rockets, and other information pertaining to the government.

Marian P. Harreld, Army Missile Command, Letter of Appreciation—this suggestion resulted in the location of the exit sign at the front entrance of building 4500 being changed so that the sign can be seen from both ends of the hall.

Ralph L. Cramer, Army Missile Command, Letter of Appreciation—this suggestion resulted in the hand rail on the stairs between the second and third floor of the "C" wing, east end, building 4488 being firmly anchored to the wall.

Phil R. Hugel, Jr., Army Missile Support Command, \$15 award—this suggestion provides a design for a device to unroll Xerox roll paper which will allow the trimmer to continually trim pages from the roll. The estimated first year savings is \$200.

Marvin R. Pogue, Army Missile Support Command, \$35 award—this suggestion resulted in a box of some description being placed at each Xerox 914 Copier for

the purpose of keeping imperfect copies made by the machines since all copies over 2000 that are run each month do not come under the flat rate and costs 2½ cents per copy. The estimated first year savings is \$700.

Shirley W. Woods, Army Missile Command, \$45 award—this suggestion resulted in DA Form 260,

which is printed locally, being changed to allow all information which is typed in by the Directorate of Supply and Maintenance to be printed on the same side to eliminate having to type on the reverse side. Typing savings are estimated at \$810 for the first years usage.

HERE'A A HAPPY NEW YEAR REMINDER! Taxpayers receiving tax refunds this year can again turn it into a nest egg—by taking the refund in U. S. Savings Bonds!



DOUBLE BARREL HONOR—Among the tasks of a Commanding Officer are such things as awarding Commendation Medals and pinning on new insignia rank. But, it's not often he does both at the same time. Brig. Gen. Howard P. Persons, Deputy Commanding General, Air Defense Systems, got such a chance last Thursday when Warrant Officer Houston C. Pelham appeared before him. In rapid order Gen. Persons gave WO Pelham his WO-4 bar and a gold Commendation Medal. WO-4 is the highest Warrant rank. WO Pelham, a veteran of 24 years service, is a Hawk Project Officer. Home is Montgomery, Ala. Admiring the medal is Mrs. Pelham.

Be A Successful Secretary



By Attending NACC Night Classes

Beginning and Refresher Classes in Gregg Shorthand, Space, Missile, and Engineering Shorthand, Federal Entrance Coaching and Stenograph Machine Shorthand.

Since 1948 more graduates from NACC have passed Civil Service exams than any other commercial school in Alabama.

North Alabama College of Commerce

North Alabama College of Commerce Bldg.
528 Madison Street — Huntsville, Alabama
PHONES 536-2611 or 539-0429

Accredited by: The Accrediting Commission for Business Schools, Washington, D. C.

HAVE YOU OUT GROWN YOUR HOME?

TRADE-IN . . . Your Present Home and Move Up to . . .

LAKEWOOD

YOU'RE INVITED To Our Trade-in Program

809's If You Have Out-grown Your Present Home

You can now get a second 809 loan by selling or trading us your present home on one of our beautiful 3 and 4 bedroom with den brick homes.

PHONE: 852-1901

LAKEWOOD

REALTY, INC.

3611 Memorial Parkway, North

OAKMONT

BEAUTIFUL HOMES

Price \$16,700 and Up

100% VA Minimum Down FHA

Hunter & Mitchell

REALTORS Phone 539-1759

BAILEY ESTATES

Located off Patton Road near Arsenal Gate One on Apollo Drive

BEAUTIFUL ALL BRICK HOMES

3 BEDROOMS — 1½ BATHS — HOLLYWOOD STYLE

LEARN TO APPRECIATE VALUE IN DESIGN AND HEAVY CONSTRUCTION . . .

MIN. DOWN FHA \$15,500 100% VA \$500.00 F.H.A. — No Down Payment

Merritt and Raines

REAL ESTATE

4601 Triana Blvd. — Call 24 Hours — Phone 881-4290

BORROW

\$2200

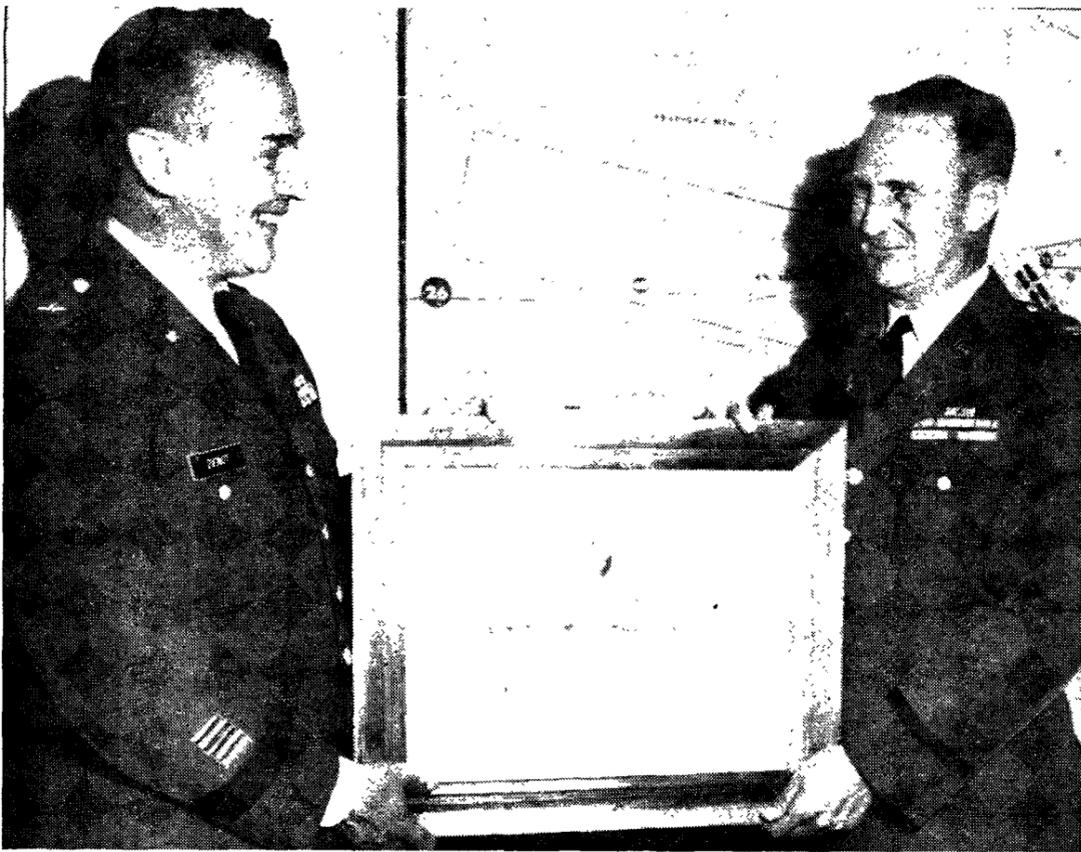
REPAY \$24.43

Homeowners Consolidate YOUR BILLS INTO ONE LOW MONTHLY PAYMENT —REPAYMENT SCHEDULE—

Amount	Mo. Pymts.
\$1,500	\$16.66
\$2,000	\$22.21
\$3,000	\$33.31
\$5,000	\$55.52

Real Estate Mtg. Co.

998 TIMES BLDG.
(Corner Greene & Holmes)
DIAL 539-3457
24 Hrs. Everyday



SAFETY COMMENDATION TO AMSC—Maj. Gen. John G. Zierdt, Commanding General of the Army Missile Command, presented the Army Materiel Command Commendation for Safety to Col. Thomas W. Cooke, Commander of the Army Missile Support Command. The award was won by AMSC for reductions of 11% in accidents, 67% in costs and 26% in average, accomplished through the FY 63. After extending congratulations to Col. Cooke and individuals in AMSC, Gen. Zierdt stated that the safety record was instrumental in the Missile Command's receipt of an Award of Merit for Safety. Similarly, the Missile Command safety record helped the Army Materiel Command to win the Army Award of Honor for Safety.

Pershing Equipment Used To Evacuate Sick Baby

Army equipment is built to surmount all kinds of obstacles—as the Pershing XM474 carrier proved on a rescue mission on Keel's Mountain during the big snow New Year's Eve.

The James Harbin family and a second family were using the same gas bottle for fuel.

The snow came and the fuel supply failed. The Harbin's seven month-old baby was sick. A neighbor walked out and asked the Madison County Rescue Squad for help.

Jim Hubbard from the Marshall Space Flight Center stood by to parachute onto the mountain to see what was needed. The Madison County Road Patrol tried to make the trip and failed.

Edward E. Simms of the Rescue Squad called Frank C. Bunn, chief of the Systems Test Branch, Research and Development Directorate. Bunn called two men from the Test and Reliability Evaluation Laboratory, George Sumner and Robert Mack, both familiar with the XM474 operation. On the job they are electronic technicians.

Meantime, at Gurley, Dixie Lee

McMullen, an installer-repairer lead man in the Astrionics branch at Marshall Space Center was alerted. He rigged a two way radio between his home and the XM474 when it arrived in Gurley.

They also loaded a supply of fuel aboard and took off up the mountain with Frank Bunn following in his jeep. Bunn's fuel was getting low and it was getting dark so he turned back. The trip began at 5:30 p.m.

The XM474 kept in radio contact with Mrs. McMullen who relayed its progress to the rescue squad members.

When the Pershing carrier arrived at the Harbin home, guided by McMullen who is familiar with the area, the Harbin's were happy to climb aboard and head for shelter with relatives in the valley. With the fuel supply replenished, the second family elected to remain where they were.

It was 6 a.m. on Thursday morning before the rescue mission was completed and the Harbin's were able to get medical aid for the baby.

It took Sumner and Mack another two hours to make it home.

MISSILES

(Continued From Page 1)

\$3,473,116 contract for production of Hawk missile guidance and control systems. Work on the contract will be performed at the company's plant in Andover, Mass.

A \$1,273,998 award to the Intercontinental Manufacturing Co., Garland, Texas, will cover production of Hawk missile motor components.

The Aeronutronic Division of Philco Corp., Newport Beach, Calif. received \$1 million for continued research work connected with the Shillelagh missile system at their Newport Beach plant.

The Hughes Aircraft Co., Culver City, Calif., was awarded \$1 million for continued work on the TOW missile development.

The Procurement and Production Directorate at the Army Missile Command negotiated and executed the TOW and Shillelagh contract. The Research and Development Directorate at the Army Missile Command will retain technical administration of the contracts, and the balance of the administration will be transferred to the Los Angeles Procurement District.

The Sergeant is a surface-to-surface, single-stage ballistic missile system, capable of carrying either nuclear or conventional warheads.

Hawk is the Army's surface-to-air missile system designed as a defense against high performing, low-flying targets.

The Shillelagh missile is a light-weight, surface-to-surface guided missile for close-in support of troops.

TOW (Tube Launched Optically

LABORATORY

(Continued From Page 1)

development, it was given the responsibility for leadership in this field.

The laboratory will perform exploratory research into highly sophisticated future guidance systems and their components, such as gyros and accelerometers, which detect and control the movement of a missile during free flight.

Isolation pads are being designed for the new laboratory which will be at least 10 times as stable as those now being used by the laboratory. These pads protect delicate parts of the guidance and navigation systems from outside vibrations during tests.

So delicate are some guidance systems that nearby foot traffic can throw them off.

The new lab will also have "ultra-clean" rooms that will keep the work area 100 times cleaner than the immaculate clean rooms now in use. In addition, technical air conditioning to be installed in parts of the laboratory will hold temperatures to within one degree of fluctuation.

Even microscopic particles of dust or small variations in temperature and humidity can impair

tracked Wire guided missile) is being designed for use by the infantryman against heavily armored tanks.

The Boston Procurement District will administer the Hawk contract to Raytheon and the St. Louis Procurement District the Hawk with Intercontinental Manufacturing Co.

the accuracy of some guidance system components.

The new laboratory will add a wing to existing research and development facility.

When the research and development complex so expanded is fully occupied, it will house in one building five research and development laboratories now scattered over the 40,000 acre arsenal in facilities constructed during World War II. These laboratories are devoted to advanced development work in missile ground support equipment, structures and mechanics, guidance and control, electromagnetics and advanced systems.

The Army Corps of Engineers will be construction agent for the Missile Command.

WEATHER

(Continued From Page 1)

sity of granting excused absences was said to be not in consonance with the policy of production and economy expressed by the President, Secretary of Defense and Administrator of the National Aeronautics and Space Administration.

Letters were also sent to all personnel of the Army Ordnance Guided Missile School and the Nike X Project Office by their commanders. Officials of Thiokol Chemical Corporation and Rohm & Haas, the two major Army contractors on Redstone Arsenal, have informed Arsenal officials that they concur in the new policy statement which indicates that in the future, the criteria for declaring excused absences will be considerably more stringent.

SECOND STAR

(Continued From Page 1)

Research and Development Directorate, U. S. Army Materiel Command. From March, 1956, until June, 1962, he had an unbroken tour of six years in assignments of progressively increased responsibility at Redstone Arsenal.

He played a key role in development of the Jupiter intermediate range ballistic missile. Later he took personal charge of the Army's Nike Zeus anti-missile missile development program and was then assigned as Deputy Commanding General, Guided Missiles, of the Army Ordnance Missile Command, predecessor organization of the Missile Command which he now heads.

Gen. Zierdt is a 1937 graduate of the U. S. Military Academy; a graduate of the Command and General Staff College; the Army War College; and he did post graduate work at Massachusetts Institute of Technology.

REPRESENTING NEW YORK LIFE

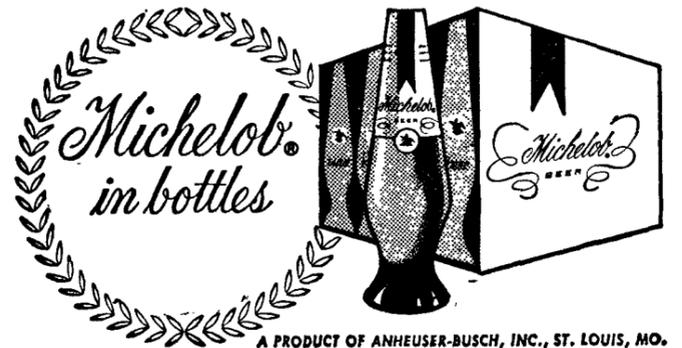


G. W. (George) EILERS
M/Sgt., Ret.



W. H. (Bill) CLISSON
Lt. Col., Ret.

Res. 881-1526 — Bus. 536-6301 — Res. 539-3256
250 Governors Drive, SE — Huntsville, Ala.



A PRODUCT OF ANHEUSER-BUSCH, INC., ST. LOUIS, MO.

Distributed By
TURNER BEVERAGE CO.
Huntsville, Alabama

WANT MONEY?

Cash You Receive	24 Monthly Payments
\$400.	\$18.66
\$800.	\$37.33
\$1200.	\$56.00
\$2000.	\$93.33

LOANS

From \$301. Up

For Any Good Purpose
... On Signature, Furniture, Automobiles, Real Estate.

CONSOLIDATE YOUR BILLS—PAY ONE SMALL NOTE!

Guardian



Discount

PHONE 539-2787

1004 MERIDIAN ST., NO.

HUNTSVILLE

IT COST **LESS**

to

Furnish Your Home

at

Sterchi's

North Alabama's Largest Furniture Store



DOWNTOWN HUNTSVILLE
Phone 534-5681

Also Sterchi Stores to Serve You at Scottsboro and Fayetteville.

Army Research Produces Fascinating Results

The Army spends \$1.2 billion a year on research and development out of an overall Army budget of \$10 billion. About \$30 million of the research and development money goes into basic scientific research; the rest goes for applied research and development.

There should be no mistake about it. The Army spends its R&D money to improve its ability to fight a war—but many of these discoveries have direct benefit to the civilian population. The Army scientist who tackles a fundamental problem in science does so with the picture of armed conflict between men in the back of his mind.

Medical Research

The Army medical researcher probes the puzzling world of viruses and turns out a new vaccine (for example, against Asian flu) so that soldiers might be kept healthy and ready to fight. The Army physicist studies light and sound to make better instruments for destruction of, or defense against, an armed enemy.

But war is wasteful of human talents and resources. Is research for war equally wasteful? Not necessarily. The dividing line between research for war and research for peace is not sharp.

The Army has found that knowledge gained for war often has wide peaceful application. More importantly, Army research often adds to our fundamental knowledge about the natural world in which we live.

Atomic Energy

Atomic energy is the obvious, although overworked, example. Man's understanding of the structure of matter and the relation of matter to energy certainly was progressing through non-military research in the half century before World War II. But compared to the pace at which things have moved since then, the advance was slow. Military need for the atom bomb provided speed.

Atomic and nuclear research for war, carried out by the U. S. Army through its famed Manhattan Project, not only produced the bomb, but it also produced new knowledge. Life-saving radiosopes for use in medicine, nuclear reactors to supply power for ships and industry and homes, and all the other promised benefits of an atomic age were brought closer to reality by research on a bigger and better bomb for war.

There are more current examples. One very recent, and remarkable, advance in electronics goes by the name of photolitho-

graphic microminiaturization. This is the process of printing electronic circuits on to tiny, thin ceramic wafers with germanium "ink." With it, complicated electronic circuits can be bundled into packages as small as an inch square.

The process, and the principles on which it is based, were developed by Army scientists at the Diamond Ordnance Fuze Laboratory, Washington, now the Harry Diamond Laboratory of the U. S. Army Materiel Command. This was research for war, pure and simple.

Missile Warheads

The scientists developed photolithographic microminiaturization to make possible better, more elaborate fuzes for bombs and missile warheads. Now it turns out that the process has a much wider application. It has caused a minor revolution in electronics for civilian use. Manufacturers have used the process for developing small but powerful hearing aids for the hard of hearing.

Television and radio manufacturers are using the process to make their sets smaller and more powerful. The process will have a place in the making of anything that uses a vacuum tube or a transistor.

The U. S. Army Signal Corps pioneered radar in this country. Now radar is found in scores of civilian roles—guiding airliners around storms, giving improved navigational tools to ships at sea, and helping the weatherman make his forecasts, not to mention the aid it gives policemen in spotting speeders on the highways.

Electronic Computers

Army research money ushered in the modern age of electronic computers. Early in World War II, the Army sought a better and faster way to prepare artillery firing tables. To accomplish this, the Army entered into a research contract with scientists at the University of Pennsylvania, out of which came ENIAC, this country's first electronic brain.

Several Army research branches are working on direct conversion of chemical energy to electrical energy through the use of fuel cells. Potential of this work is exciting, both for military and civilian use. We may one day have batteries to which we add chemicals and get out enough electricity to drive motors and light whole buildings. The impetus for this research is military. Such fuel cells could free our armies from long, vulnerable supply lines and give our soldiers the battlefield mobil-

ity planners predict will be needed in any future war — be it general or limited war. It is not only a saving on fuel that is important — electric cars are simpler and need less maintenance. Fuel cells also are energy storage systems. They offer means whereby heat from the sun or from nuclear reactors can be stored and used when needed.

Civilian Uses

Civilian applications seem limitless. Even more important is the theoretical efficiency of fuel cells. Scientists figure the ideal fuel cell will produce electrical power twice as efficient as conventional methods; that is, it will take only half as much energy input to get the same power output. This kind of efficiency can, in a century or so, prove the solution to worldwide power shortages.

DFP (for di-isopropyl fuophosphate) came out of Army gas warfare research and was for several years a valuable drug in the treatment of the eye disease, glaucoma. It has largely been discontinued in glaucoma treatment because better drugs have since been found.

DFP is not itself a war gas. Army chemists discovered it while studying a wide variety of compounds containing the element, phosphorus, an important constituent of the deadly nerve gases.

Nerve gases were first developed by German scientists before and during World War II. Actually, these scientists were looking for insecticides to protect crops and evolved nerve gases from this work. Army Chemical Corps scientists took up this work for its nerve gas value and modern-day insecticides have evolved from this.

Insect Gas

Another war gas that has found peaceful work is chloropicrin, a gas developed during World War I. Better gases are now available and it is not likely that chloropicrin would find a war use if any nation ever resorted to this kind of warfare. But farmers these days use compounds containing chloropicrin to rid their fields of crop-destroying worms and rodents.

Even research on biological warfare has its peaceful side.

Army Chemical Corps scientists have developed a single toxicid to protect humans against all five types of botulism—food poisoning. They were led to this work out of fear that any enemy might one day attack us by scattering botulism organisms across the country. The toxicid is now available to the public.

Rust-resistant wheat is another outgrowth of biological warfare. There are several rust-resistant strains of wheat being used now by American farmers and much of this research was done by the U. S. Department of Agriculture agronomists. But at least two of the strains came out of Army investigations into anti-crop agents—agents that will destroy an enemy's food supply.

Better Wheat

In their research, Army Chemical Corps workers discovered in Africa two strains of wheat which are naturally resistant to rust. Since then, these strains have been incorporated into U. S. wheat farming.

Army scientists, working with Canadian researchers, in another aspect of biological warfare, have produced an effective vaccine against rinderpest disease in cattle. They developed the vaccine as a defense against an enemy that might try to reduce or eliminate our cattle herds by strewing rinderpest organisms across the country. The vaccine is being used commercially now.

Other Chemical Corps researchers, working out better means of laying down smoke screens on the battlefield, came up with techniques of using smoke clouds to deliver ultra-fine chemical treatment particles to crops. The method involves new types of smoke "ginnies"—generators—which are now finding use on farms.

Discoveries and work by Army medical scientists have obvious and wide civilian applications. Soldiers and civilians are pretty much the same medically and what aids one is bound to aid the other. Dr. John Jones, a surgeon with the Colonial troops in the Revolutionary War, wrote the first American medical textbook.

Smallpox Vaccine

Dr. Benjamin Waterhouse, a Regular Army surgeon, introduced vaccination against smallpox to the U. S. The Army's Dr. Benjamin Rush wrote the first U. S. text book on psychiatry, a field of medicine in which Army doctors have made numerous contributions. Army Surgeon William Beaumont, who studied the human digestive system, is recognized as a pioneer American physiologist and Army Surgeon General George M. Sternberg, the father of U. S. bacteriology, was working for the Army when he isolated and identified the organism causing a common form of pneumonia.

Major Walter Reed's work in Cuba, which led to the conquest of yellow fever, is world-renowned. The work of Army doctors on hookworm, dengue fever, malaria and typhoid fever brought about better health for all men. Army medics were the first to spot the recent Asian flu epidemics coming after the disease broke out in China.

Army Medical Service funds supported, in part, research at three different medical schools which led to Griseofulvin, the new oral antibiotic useful against fungus infections of the skin. Vaccines against adenoviruses, preservation and transplantation of eye corneas and blood vessels, new burn treatments, functional artificial limbs—all of these are products, at least in part, of Army medical research.

Biopsy Capsule

Army doctors at Walter Reed Institute for Medical Research in Washington developed a capsule attached to a tube which, when swallowed by a patient, permits the doctor to take a biopsy specimen from the wall of the small intestine.

The capsule recently turned up new knowledge about an old disease, cholera. For years, doctors believed cholera caused a sluffing of the wall of the small intestine. This, they said, explained the "rice water" stools common to cholera sufferers. The use of the Army's biopsy capsule disproved

the theory during an epidemic of cholera in Thailand two years ago. Using the capsule, doctors showed that the intestinal wall remains intact in cholera, but absorption characteristics of the wall are changed, which explains the watery stools.

The Army has scientists whose jobs permit them wide latitude in scientific inquiry. One such individual is Dr. Henry F. Kalmus, a physicist at AMC's Diamond Laboratory. The Army has found it often pays to support basic scientists like Dr. Kalmus in projects so fundamental that it is difficult to find an application for them in war.

Ordnance Contributes

Dr. Kalmus is an expert on electronic measuring of liquids and gases in motion. Out of this interest, Dr. Kalmus, while working for the Ordnance Corps, one of the predecessors of the U. S. Army Materiel Command, developed equipment to measure the quantity and quality of blood while it courses the veins and arteries of the human system.

His equipment now is in use at the National Institutes of Health and at Georgetown University Hospital. After he perfected the blood measuring system, Dr. Kalmus, using the same principles, developed a system to maintain constant qualitative and quantitative checks on the flow of coolant around nuclear reactors in atomic submarines. These underwater warships now use Dr. Kalmus's devices.

Other AMC Diamond Lab scientists, an Army center for basic research, developed the much-publicized light bulb so small it can pass through the eye of an ordinary needle. The Army needed this item to illuminate the many dials that go into a modern missile control panel.

Now a private contractor is making the light bulb for transistorized circuits in missiles and computers, and foresees the day when such bulbs might prove useful to illuminate ornamental jewelry for the ladies.

Make Diamonds

Signal Corps scientists at Fort Monmouth, New Jersey, the headquarters of the U. S. Electronic Command, one of AMC's seven subcommands, have learned independently how to use high pressures and high temperatures to make industrial diamonds out of graphite—carbon. Through this research, the Army hopes to learn

(Continued on Next Page)

AT YOUR BECK AND CALL!



A savings account is like Alladin's lamp, except that you don't even have to rub it! It places at your instant command the benign "genie" of ready money . . . to get you what you want to have, to take you where you want to go, to meet any unexpected emergency. Open a savings account here NOW!

FIRST NATIONAL BANK

OF HUNTSVILLE

FIVE LOCATIONS TO SERVE YOU

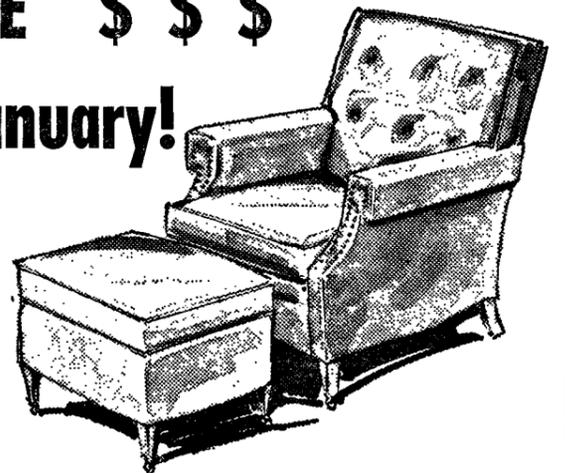
Redstone Facility Office—Bldg. No. 3651

Main Office—W. Side Sq. — So. Mem. Parkway Branch

Madison Street Branch — Five Points Shopping Center

SAVE \$ \$ \$

In January!



Complete Furniture and Auto Upholstering Service

Have your furniture custom upholstered by our experienced personnel with our luxury fabrics . . . nylons, naugherhydes and rayons . . . at prices you can afford.

Call us for an estimate and let our decorator come to your home and show you samples of materials you would like to have on your furniture.

AUTO CENTER SEAT COVER AND UPHOLSTERY CO.

2208 CLINTON AVENUE, WEST PHONE 539-0382

ARMY RESEARCH

(Continued From Preceding Page)

more about the physics and chemistry of large synthetic crystals for use in military communications.

Engineer Research

Many construction items developed by the Army Corps of Engineers have been adopted to the civilian building industry. Most recent accomplishments in this category are a 10-ton crane mounted on a conventional D3 tractor; a spark and flame arresting muffler for engines used in high fire danger areas, such as for lift trucks in warehouses; lightweight tractor dozers which have revolutionized the power-to-weight ratio in tractor design; and diesel-powered pile drivers better and more efficient than old steam-driven models.

Other contributions of Engineer research are paints that resist blistering due to heat and paints that retard fire. Both were developed for machines and equipment of war. Now, heat resistant paint is finding use on engines and mufflers subject to high temperatures, while fire retardant paint is being used on wooden structures to protect them from flames.

Bromotrifluoromethane was synthesized as a fire extinguishing agent by Purdue University Research Institute under a Corps of Engineers research contract. BTF has two major advantages for the Army—it's particularly good at putting out oil and engine fires and it works in temperatures down to 65 degrees below zero.

For the Army, this means an excellent agent for extinguishing fires in equipment being used now in exploration at the North and South Poles. The chemical has found its civilian application with the air lines. Almost every major air line in the skies now carries BTF extinguishers.

Snow Plows

High speed rotary snow plows developed by the Engineers to keep war planes flying despite bad weather now are at work at major air terminals throughout the nation, doing the same for civilian aviation. The Chemical Corps has in the works new flame throwers to melt snow and ice

quickly.

New welding methods, new and stronger cements, chemicals that protect fabrics and leather and paint from microbial destruction are among other Engineer developments finding a place in the civilian economy.

There's another Army research development project which should strike close to every American home. It's the vacuum spray can, sometimes called the aerosol bomb. We use it now for everything from shaving soap and whipped cream to paints and lacquers.

Estimates are that the manufacture of vacuum spray cans is a \$195 million-a-year business. The aerosol bomb came from the laboratories of the U. S. Army Chemical Corps. Originally, the Corps developed the can for insecticides used by troops in the Pacific theater during World War II.

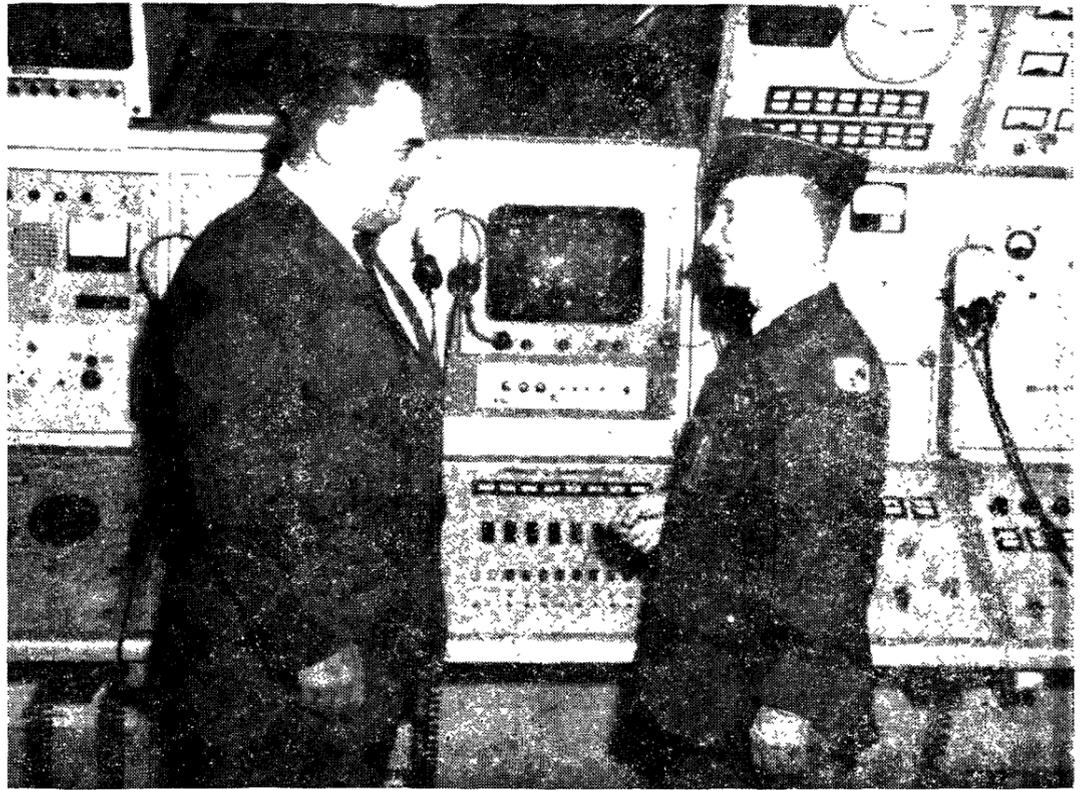
In studying the problems of heat and fuel sources in the far north, the Army has developed an air-transportable packaged nuclear power reactor which can be rapidly moved to a far northern site and used to furnish heat and electrical power. This capability reduces the cost of moving supplies to northern outposts by 40 per cent. With an anticipated influx of civilians to our new northern state, Alaska, nuclear power reactors for domestic purposes hold forth the promise of relatively cheap power.

Water Repellant

Rainwear that really repels water is a development which has just emerged from Army research—this one from the U. S. Army Materiel Command's Natick Laboratories. Over the years, there have evolved two different means of chemically testing cloth to make it repel water.

Neither one has worked really effectively, and further, repeated laundering or dry cleaning removes the repellency. AMC chemists have announced a new process which combines both the earlier processes. The resulting cloth is truly repellent and stays that way even after many washings.

The new process was proved when a treated fatigue uniform, which had been laundered 15



MAULER MECHANICS—J. C. Baer, Mauler Missile Contractor at White Sands Missile Range, briefs Brig. Gen. Charles W. Eifler, Deputy Commanding General, Land Combat Systems, Army Missile Command, on the operation of the Mauler Control Launching Console at the launch site. Gen. Eifler was accompanied by the Army Materiel Command Mauler Evaluation Committee on his one day tour of the Mauler facilities at White Sands.

times, was subjected in a test shower stand, to a one-inch rain for 24 hours a day for seven days. At the end of that time, test material inside was still bone dry.

Army patents on processes like this are made public free of charge. Textile industry interest in the process has run so high that raincoats using it are expected to be on the market very soon.

Other Army items having one or more civilian applications include:

Low-profile tires which increase traction were developed by the Army and now are found virtually on all new automobiles.

Lewisite war gas mixed with oil or creosote to make a solution which protects dock pilings from marine borers.

War on Rats

Rodenticides — sodium fluoracetate — developed by the Army to rid military bases in the Pacific theater of disease-carrying rats are now used against such land-wrecking pests as prairie dogs, ground squirrels, mice and rats.

Insect repellants, developed by the Army to protect troops from insectborne diseases in the Pacific theater, now widely used by civilians.

Toxic paints to protect ship bottoms from barnacles.

Laboratory safety equipment, developed by the Chemical Corps to protect biological warfare workers — now used in civilian laboratories where infectious organisms must be handled.

A new plastic material for taking fingerprints, developed by the old Quartermaster Corps, another predecessor of the U. S. Army Materiel Command, originally to aid in identification of the battle dead—now finding use by civilian law enforcement agencies.

New chemicals for sterilizing and disinfecting, developed by the Quartermaster Corps for use where conventional methods are lacking — now finding application in hospitals fighting antibiotic-resistant micro-organisms.

Yeast Substitute

A chemical substitute for yeast, developed by Quartermaster Corps for Army bread bakers, now drawing interest from civilian bakers.

A portable one pound gas stove which works with ordinary leaded gasoline, developed for front-line soldiers, is now drawing interest

from the makers of sporting goods.

A new process for tanning leather which cuts time required from a month to eight days, another Quartermaster development, has many civilian uses.

Missile Clothing

Overalls that resist being eaten away by acid, developed by Quartermaster for missilemen handling caustic materials—now applicable to work-a-day clothing for auto mechanics and others who must handle equally caustic although different materials.

A method of making inexpensive chicken feathers water repellent and thus a practical substitute for expensive duck feathers in pillows and mattresses, naturally has civilian application.

Ceramic cutting tools for tool and die making has application for civilian use from nutcrackers to automobiles.

The Operations Research Office of John Hopkins University, Baltimore, Maryland, has done a study

showing more than 300 new civilian products and processes that have resulted from military research and development — Army, Navy and Air Force. Operations Research Office calls these results "double dividends from defensive dollars."

The list is not complete. If anything it will broaden in scope and depth in the years immediately ahead — largely due to the work of the U. S. Army Materiel Command — including the contribution you are making to the overall mission of the Command.

U. S. Series II Savings Bonds may be obtained in exchange for Series E Bonds, when current income is desired. That's good to remember when retirement time comes.

Again this year, taxpayers may take Federal income tax refunds in U. S. Savings Bonds. It's a good way to make your refund grow.

STRIDE RITE SHOES

For Children

Straight Last — Thomas Heels — Plain Shoes

Also

"SPARKLE TOES" By Alexis

The Junior Booterie

120 Southside Square — Downtown Huntsville

Phone 539-1112 — Open Thursdays til 8 p.m

Drink to your good health with milk ... vitamin-enriched to help the whole family keep fit and full of energy. Call for delivery.



Meadow Gold Dairies

CLINTON STREET — HUNTSVILLE, ALA.

WRECKER SERVICE

In case of an accident ask for our new wrecker. Courteous operator, reasonable charges. Day Phone 539-6541, nights 534-0776.

Hill Chevrolet Company

GOODBODY & CO.

INVESTMENT BANKERS
Established 1891

Member New York Stock Exchange and All Leading Exchanges



Suite 5, 401 Lowell Dr., S.E.

HUNTSVILLE, ALABAMA

536-9602

353-1070

DECATUR, ALABAMA

money

Just tell us how much money you need to meet all your seasonal expenses! Phone before noon to arrange for your money the same day! Do it now!

Under State Supervision

LOANS UP TO \$300



FINANCE

106 South Side Square
Phone: 536-8591

109 Holmes Ave., N.E.
Phone: 534-0611

In Decatur

121 East Moulton St.
Phone: EL 3-4413

Pay all your bills with a CONSOLIDATION LOAN. This way, you will have less to pay out each month and only one place to pay. Phone us today for prompt, courteous service!

LOANS \$301 AND UP



INDUSTRIAL FINANCE

106 South Side Square
Phone: 536-8591

109 Holmes Ave., N.E.
Phone: 534-0611

In Decatur

121 East Moulton St.
Phone: EL 3-4413

Welcome Mat

The ROCKET extends a hearty welcome to the following personnel who have recently been assigned to positions with the U. S. Army at Redstone.

ARMY MISSILE COMMAND
Procurement & Production: John Avriette, Patsy L. Bewley, John T. Doheny, Paul R. Kittle, Jerry A. Nabors, James D. Putnam and Harry P. Yager.

Supply & Maintenance: Nancy W. Birdwell, Judith Brown, Barquist B. Childress, Peggy P. Duke, Anita G. Farmer, Edwina S. Graham, Henrietta Grisham, Glenn J. Herring, Edward J. Mathis, Zora C. Pritchett, Glyn E. Rosenblum, Elmer F. Rowe, Vivian M. Rowe, Francis E. Sheehan, Anne H. Stallings, Bobby F. Terry, and Willie D. Zimmerman.

Research & Development: Fred A. Bishop, Jr., Norman D. Cook, Shirley L. Johnson, Charles M. Keyserling, Ronald C. Passmore, Jack D. Robinson, Melba H. Stephenson and Billy B. White.

General Counsel: Julius T. Cage and Brenda G. Hill.

Sergeant Project Office: Beverly H. Davis, Clara H. Glover, Wade M. Green and Hazel B. Marchant.

Lance Project Office: Lillie W. Hulsey and Thomas L. Momenee.

Hercules Project Office: Kav N. Perkins, Jerry D. Reising and Price W. Vaughn.

Pershing Project Office: Robert D. Smith, Jr.

Hawk Project Office: Reba L. Tyler.

Personnel & Training: James G. Wood.

Zeus Project Office: William J. Callahan.

ARMY MISSILE SUPPORT COMMAND

James D. Adams, Jack Baugh, Joel H. Blatt, Robert O. Denton, Raymond G. Ferrell, Mary K. Greer, Margaret S. Hall, Betty H. Horton, Thomas F. Johnson, Nancy L. Jolley, Bonnie S. Mathis, Frank J. Meyer, Fredna C. Mott, Patricia G. Murks, Caroline E. Owens, Albert J. Poe, Jr., Thomas R. Ray, Linda L. Taylor, Doris C. Vessels and Linda P. Fitch.

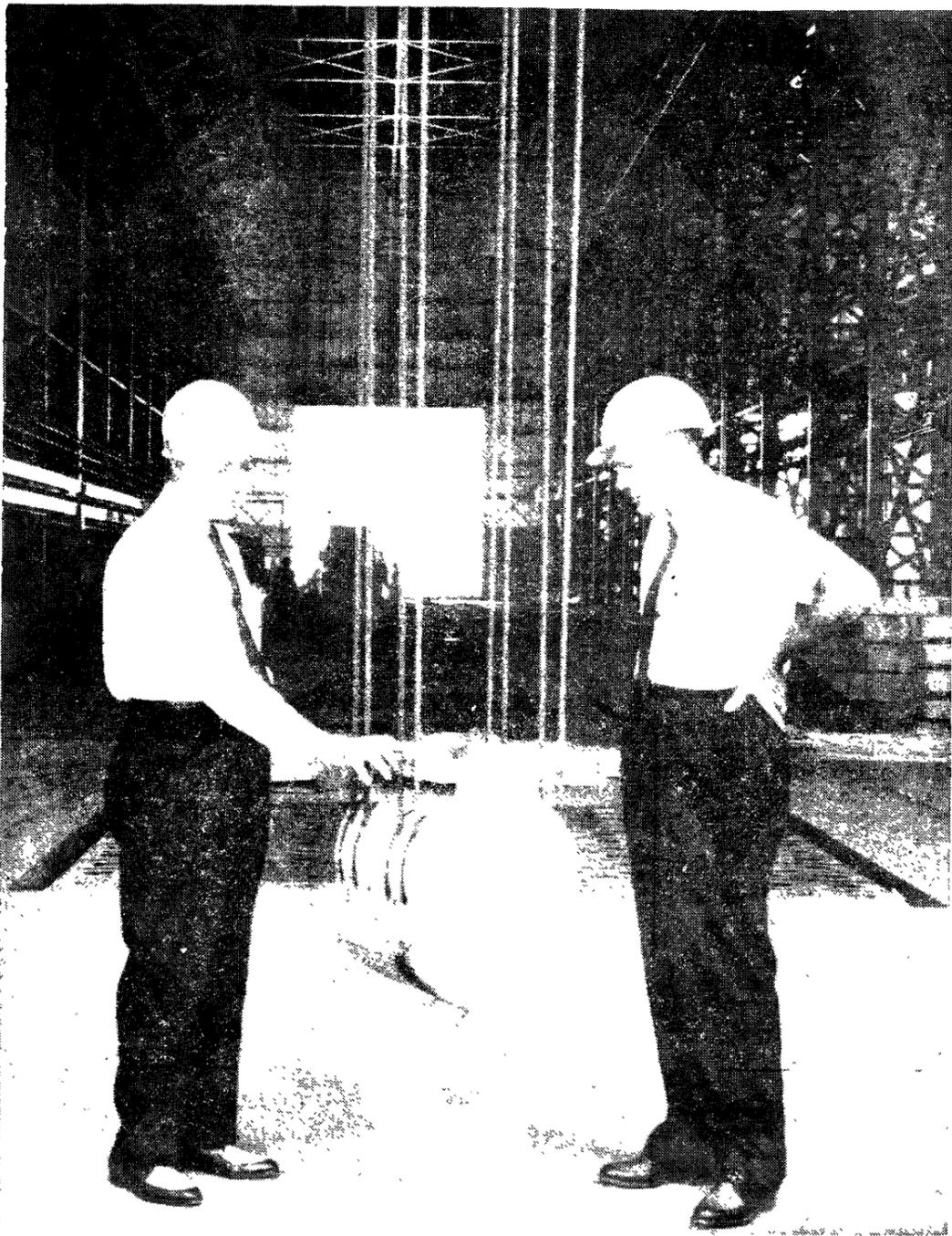
PROMOTED

Lt. Donald D. Otter was recently promoted from second lieutenant to first lieutenant at the Army Ordnance Guided Missile School.

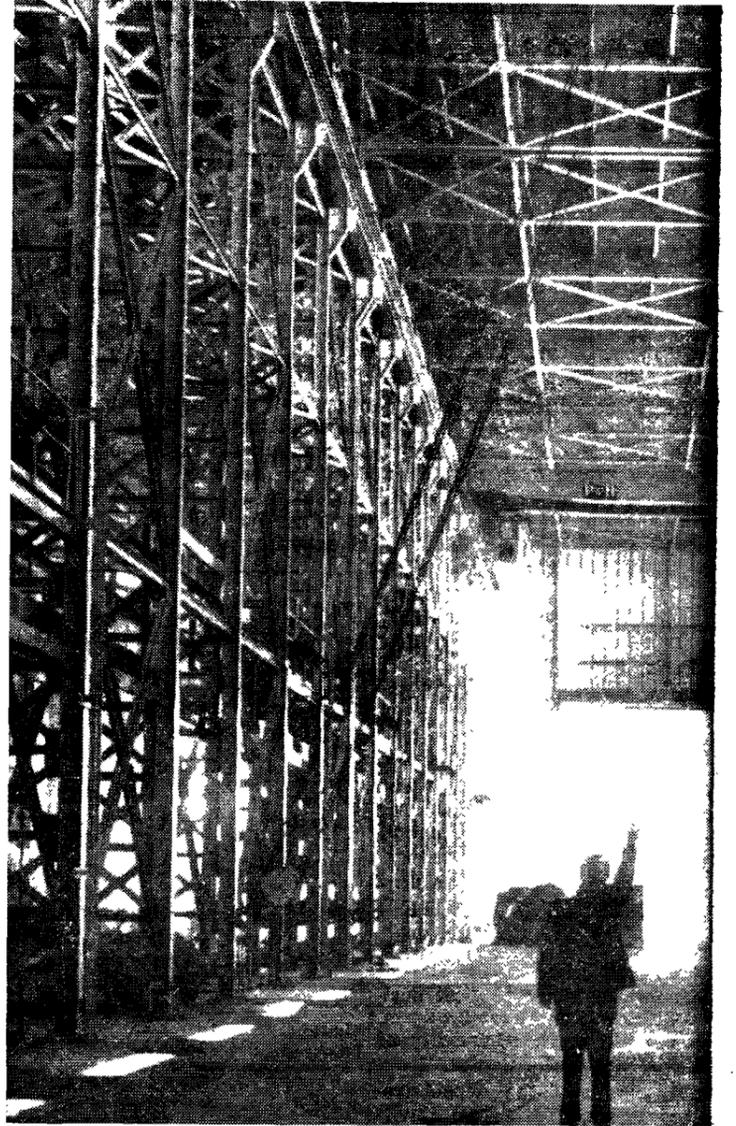
Lt. Otter was graduated in 1961 from Central Michigan University at Mt. Pleasant, Mich. He was a teacher at Bad Axe High School, Bad Axe, Mich., before entering the service in June 1962.

Amounts On 1964 Pay Checks Will Be Bigger

GRADE	Date	Rate 1	Cumulative Increase	Rate 2	Cumulative Increase	Rate 3	Cumulative Increase	Rate 4	Cumulative Increase	Rate 5	Cumulative Increase	Rate 6	Cumulative Increase	Rate 7	Cumulative Increase	Rate 8	Cumulative Increase	Rate 9	Cumulative Increase	Rate 10	Cumulative Increase	Amt. of Increase
GS-1	1960	\$ 3,185		\$ 3,290		\$ 3,395		\$ 3,500		\$ 3,605		\$ 3,710		\$ 3,815		\$ 3,920		\$ 4,025		\$ 4,130		\$105
	Oct. 1962*	3,245	60	3,350	60	3,455	60	3,560	60	3,665	60	3,770	60	3,875	60	3,980	60	4,085	60	4,190	60	105
	Jan. 1964	3,305	120	3,410	120	3,515	120	3,620	120	3,725	120	3,830	120	3,935	120	4,040	120	4,145	120	4,250	120	105
GS-2	1960	3,500		3,605		3,710		3,815		3,920		4,025		4,130		4,235		4,340		4,445		105
	Oct. 1962*	3,560	60	3,665	60	3,770	60	3,875	60	3,980	60	4,085	60	4,190	60	4,295	60	4,400	60	4,505	60	105
	Jan. 1964	3,620	120	3,725	120	3,830	120	3,935	120	4,040	120	4,145	120	4,250	120	4,355	120	4,460	120	4,565	120	105
GS-3	1960	3,760		3,865		3,970		4,075		4,180		4,285		4,390		4,495		4,600		4,705		105
	Oct. 1962*	3,820	60	3,925	60	4,030	60	4,135	60	4,240	60	4,345	60	4,450	60	4,555	60	4,660	60	4,765	60	105-125
	Jan. 1964	3,880	120	3,985	120	4,090	120	4,195	120	4,300	120	4,405	120	4,510	120	4,615	120	4,720	120	4,825	120	165-125
GS-4	1960	4,040		4,145		4,250		4,355		4,460		4,565		4,670		4,775		4,880		4,985		105
	Oct. 1962	4,110	70	4,250	105	4,390	140	4,530	175	4,670	210	4,810	245	4,950	280	5,090	315	5,230	350	5,370	385	140
	Jan. 1964	4,215	175	4,355	210	4,495	245	4,635	280	4,775	315	4,915	350	5,055	385	5,195	420	5,335	455	5,475	490	140
GS-5	1960	4,345		4,510		4,675		4,840		5,005		5,170		5,335		5,500		5,665		5,830		165
	Oct. 1962	4,565	220	4,725	215	4,885	210	5,045	205	5,205	200	5,365	195	5,525	190	5,685	185	5,845	180	6,005	175	160
	Jan. 1964	4,690	345	4,850	340	5,010	335	5,170	330	5,330	325	5,490	320	5,650	315	5,810	310	5,970	305	6,130	300	160
GS-6	1960	4,830		4,995		5,160		5,325		5,490		5,655		5,820		5,985		6,150		6,315		165
	Oct. 1962	5,035	205	5,205	210	5,375	215	5,545	220	5,715	225	5,885	230	6,055	235	6,225	240	6,395	245	6,565	250	170
	Jan. 1964	5,235	405	5,410	410	5,585	425	5,760	435	5,935	445	6,110	455	6,285	465	6,460	475	6,635	485	6,810	495	175
GS-7	1960	5,355		5,520		5,685		5,850		6,015		6,180		6,345		6,510		6,675		6,840		165
	Oct. 1962	5,540	185	5,725	205	5,910	225	6,095	245	6,280	265	6,465	285	6,650	305	6,835	325	7,020	345	7,205	365	185
	Jan. 1964	5,795	440	5,990	470	6,185	500	6,380	530	6,575	560	6,770	590	6,965	620	7,160	650	7,355	680	7,550	710	195
GS-8	1960	5,885		6,050		6,215		6,380		6,545		6,710		6,875		7,040		7,205		7,370		165
	Oct. 1962	6,090	205	6,295	245	6,500	285	6,705	325	6,910	365	7,115	405	7,320	445	7,525	485	7,730	525	7,935	565	205
	Jan. 1964	6,390	505	6,600	550	6,810	595	7,020	640	7,230	685	7,440	730	7,650	775	7,860	820	8,070	865	8,280	910	210
GS-9	1960	6,435		6,600		6,765		6,930		7,095		7,260		7,425		7,590		7,755		7,920		165
	Oct. 1962	6,675	240	6,900	300	7,125	360	7,350	420	7,575	480	7,800	540	8,025	600	8,250	660	8,475	720	8,700	780	225
	Jan. 1964	7,030	595	7,260	660	7,490	725	7,720	790	7,950	855	8,180	920	8,410	985	8,640	1,050	8,870	1,115	9,100	1,180	230
GS-10	1960	6,995		7,160		7,325		7,490		7,655		7,820		7,985		8,150		8,315		8,480		165
	Oct. 1962	7,290	295	7,535	375	7,780	455	8,025	535	8,270	615	8,515	695	8,760	775	9,005	855	9,250	935	9,495	1,015	245
	Jan. 1964	7,690	695	7,945	785	8,200	875	8,455	965	8,710	1,055	8,965	1,145	9,220	1,235	9,475	1,325	9,730	1,415	9,985	1,505	255
GS-11	1960	7,560		7,820		8,080		8,340		8,600		8,860		9,120		9,380		9,640		9,900		260
	Oct. 1962	8,045	485	8,310	490	8,575	495	8,840	500	9,105	505	9,370	510	9,635	515	9,900	520	10,165	525	10,430	530	265
	Jan. 1964	8,410	850	8,690	870	8,970	890	9,250	910	9,530	930	9,810	950	10,090	970	10,370	990	10,650	1,010	10,930	1,030	280
GS-12	1960	8,955		9,215		9,475		9,735		9,995		10,255		10,515		10,775		11,035		11,295		260
	Oct. 1962	9,475	520	9,995	575	10,515	630	11,035	685	11,555	740	12,075	795	12,605	850	13,135	905	13,665	960	14,195	1,015	315
	Jan. 1964	9,980	1,025	10,310	1,095	10,640	1,165	10,970	1,235	11,300	1,305	11,630	1,375	11,960	1,445	12,290	1,515	12,620	1,585	12,950	1,655	330
GS-13	1960	10,635		10,895		11,155		11,415		11,675		11,935		12,195		12,455		12,715		12,975		260
	Oct. 1962	11,150	515	11,515	620	11,880	725	12,245	830	12,610	935	12,975	1,040	13,340	1,145	13,705	1,250	14,070	1,355	14,435	1,460	365
	Jan. 1964	11,725	1,090	12,110	1,215	12,495	1,340	12,880	1,465	13,265	1,590	13,650	1,715	14,035	1,840	14,420	1,965	14,805	2,090	15,190	2,215	385
GS-14	1960	12,210		12,470		12,730		12,990		13,250		13,510		13,770		14,030		14,290		14,550		260
	Oct. 1962	12,845	635	13,270	800	13,695	965	14,120	1,130	14,545	1,295	14,970	1,460	15,395	1,625	15,820	1,790	16,245	1,955	16,670	2,120	425
	Jan. 1964	13,615	1,405	14,065	1,595	14,515	1,785	14,965	1,975	15,415	2,165	15,865	2,355	16,315	2,545	16,765	2,735	17,215	2,925	17,665	3,115	450
GS-15	1960	13,730		14,055		14,380		14,705		15,030		15,355		15,680		16,005		16,330		16,655		325-260
	Oct. 1962	14,565	835	15,045	990	15,525	1,145	16,005	1,300	16,485	1,455	16,965	1,675	17,445	1,895	17,925	2,115	18,405	2,265	18,885	2,415	480
	Jan. 1964	15,665	1,935	16,180	2,125	16,695	2,315	17,210	2,505	17,725	2,695	18,240	2,885	18,755	3,075	19,270	3,265	19,785	3,455	20,300	3,645	515
GS-16	1960	15,255		15,515		15,775		16,035		16,295		16,555		16,815		17,075		17,335		17,595		260
	Oct. 1962	16,000	745	16,500	985	17,000	1,225	17,500	1,465	18,000	1,705	18,500	1,945	19,000	2,185	19,500	2,425	20,000	2,665	20,500	2,905	500
	Jan. 1964	16,000	745	16,500	985	17,000	1,225															



SKYHOOK FOR MISSILES—Not many people in the Missile Command have to climb an 80-foot ladder to get to work in the morning. But, that's what the operator of the overhead crane this hook is attached to will have to do. The crane is mounted in the 80-foot high bay area of the Directorate of Research and Development's new laboratory and office building just off Martin Road. The 80-foot high bay rises at one end of the 50-foot high central corridor shown here. Entire missiles can stand on end for testing in this area. Looking over the hook are two members of the Directorate's Technical Programs Control Office: Virgil Cagle, Chief, Facilities and Equipment Branch; and Dave Mitchell.



HIGH CEILING — Houston, Texas' new indoor football stadium catches the attention of a lot of people. But, you could almost play football in the high bay area of R&D's new laboratory and office building. The corridor, shown here in part, is more than 400 feet long and its ceiling 50 feet high. A 48-foot Zeus missile, the Army's second longest missile, could stand upright inside without bumping its nose. The 69-foot Redstone, longest of Army missiles, can stand on end in an 80-foot high section of the corridor. Hugh doors at each end will admit wide loads with ease. The new building, scheduled for beneficial occupancy in mid-January, is located just off Martin Road.

Col. Graham Is Project Manager

Col. Erwin M. Graham (Ord C) was appointed as Project Manager for the Interim Air Defense Weap-

on System by Lt. Gen. F. S. Beson, Jr., Commanding General, U. S. Army Materiel Command.

In this capacity Col. Graham will be responsible for evaluating, developing and procuring an Interim Air Defense Weapon System to augment forward (Division area) air defenses needed in the next several years.

Prior to his present assignment, Col. Graham was Chief of the Missile Branch, Development Division,

Directorate of Research and Development, Headquarters, Army Materiel Command. Other assignments include Control Office, U. S. Army Missile Command; Chief of the Procurement Office in Paris, France, and Oslo, Norway, and the first Commandant of the Ordnance Guided Missile School.

One gift never goes out of style — U. S. Savings Bonds. They are practical as well as patriotic.

ENJOY "OK" USED CAR SAVINGS
B-U-Y W-I-T-H WARRANTED CONFIDENCE
HILL CHEVROLET CO.

LOCAL & LONG DISTANCE MOVING • STORAGE

"A Mayflower Move Is A Good Move"
Call 534-2445
WHITE-MAYFLOWER


John Clark
Clark's Barber Shop
Dunnivant's Mall
Governors Drive at Parkway
"Satisfaction Guaranteed Or Money Refunded"

ARE YOU BUYING OR SELLING? MORTGAGE LOANS
Maximum FHA and VA — Maximum Terms
Conventional Loans 5½% - 5¾% — 25 Yr. Terms
W. B. Leedy and Company, Inc.
401 Lowell Dr. Suite 6
Phone 539-3404
Huntsville, Alabama

DEPOSIT BY THE 5TH OF THE MONTH . . . EARN FROM THE FIRST

4.8%

DIVIDEND
Per Annum Rate
Declared
on
1963 Shares

Members Earn Life Insurance Coverage, too! For details, see Your Credit Union



REDSTONE FEDERAL CREDIT UNION
A Cooperative Savings and Loan Corporation

REDSTONE ARSENAL, ALABAMA

SOCIAL ^{and} CLUB EVENTS

Newcomers Coffee Planned By Wives

The first social event since the death of President Kennedy sponsored by the Redstone Arsenal Officers Wives Club will be a Newcomers Coffee at the Squirrel Hill Officers Club Tuesday, Jan. 14 at 10 a.m.

Reservations will be taken until noon Jan. 10 by Mrs. J. Stewart, 877-5147. Mrs. D. Ulrich, 877-5155, Mrs. D. Green, 877-4163, and Mrs. W. Paris, 877-5342.

Mrs. J. S. Farrington, 877-5260, will handle cancellations until noon Jan. 13.

Newcomers will have the opportunity to get acquainted not only with members of the Officers Wives Club, but also will have an

opportunity to become a part of the social, service and recreational subsections of the Wives Club.

These include as examples, bridge groups, golf and bowling, and Gray Lady Service, Educational activities are also included.

Dinner Dance Tickets Ready

Tickets are now available for the annual dinner-dance climaxing Engineer's Week in Huntsville. The affair will be held at the Officers' Club on Feb. 22.

John Beal, Jr., chairman of the ticket sales for the occasion, said that first priority will be given to members of the Alabama Society of Professional Engineers and of the founder societies such as American Society of Chemical Engineers and American Society of Mechanical Engineers.

Persons desiring tickets should contact Ben Keyserling ext. 876-8914 or Pete Redding (ext. 876-6653).

Reserve Officers Schedule Meeting

Huntsville's chapter of the Reserve Officers Association will hold its monthly meeting on Friday (Jan. 17) at the Redstone Arsenal Officers Club.

Lt. Gen. E. J. Timberlake, USAF, Commander of the Continental Air Command, will be guest speaker. Attending will be guests from the Birmingham, Montgomery, Decatur and Tri-Cities ROA Chapters.

Brig. Gen. Howard P. Persons, Jr., Deputy Commanding General Air Defense Systems, will attend representing the Army Missile Command.

Tickets may be obtained by calling Lt. Col. Bill Potter and Lt. John Harris at 876-8173, Lt. Col. Ben Keyserling at 876-8069 or Lt. Col. John Edgar at 876-7104.

Mayor C. E. Hammett is president of the Huntsville chapter of the ROA.

Gen. Funk Schedules Dinner Talk

Maj. Gen. Ben. I. Funk, Commander of the Air Force Space Systems Division, will be the featured speaker Tuesday evening, Jan. 14 at the annual meeting of the Tennessee Valley Post, American Ordnance Association.

David H. Newby, president of the local chapter, said General Funk is scheduled to arrive Monday, Jan. 13, in time to attend an event hosted by the Huntsville Industrial Expansion Committee.

He is to tour Space Center and Army facilities Tuesday.

Gen. Funk will be accompanied by six members of his staff. They are Brig. Gen. Joseph S. Bleyman, Col. Donald H. Heaton, Col. Robert W. Hoffman, Col. John Hudson, Lt. Col. Kenton D. McFarland and Capt. Archie NeSmith, Jr.

Gen. Funk is head of the Air Force's military space program. The AOA address is to be entitled "Military Space Operations."

The meeting, to be held at the Squirrel Hill Officers Club, will begin with a social hour at 6 p.m., dinner at 7.

The group will leave Huntsville Wednesday morning for a tour of facilities at Tullahoma, Tenn.

The AOA annual meeting was originally scheduled for Nov. 26. Newby postponed the event due to the assassination of President Kennedy.

Wives Plan Joint Coffee Jan. 21

The Army Missile Command Officers Wives group is sponsoring a joint meeting with the Army Missile Support Command Officers Wives, the Ordnance Guided Missile School Officers Wives, and the Zeus Project Officers Wives on Jan. 21 at the Squirrel Hill Officers Club.

Planned as a 10 a.m. coffee, the group will hear Carol Lane, travel advisor for the Shell Oil Company.

The meeting will be in the Hawk Room. Reservations are being handled by Mrs. Robert Kriz, 877-4738 and Mrs. William Luk, 877-5731 with a deadline of noon Friday, Jan. 17. Cancellations will be accepted until noon Monday.

The program chairman announced that guests will be welcome.

AIIE TO MEET

The North Alabama Chapter of the American Institute of Industrial Engineers will meet on Monday, Jan. 13, at Dale's Restaurant in Huntsville.

The meeting will be highlighted by the election of officers for 1964. Also on the program is a special report from Bill Hager regarding the community service project the Chapter has been working on. All members are strongly urged to attend this most important meeting and their guests are cordially invited by the officers.



RECEIVES SERVICE AWARD—Frank J. Visosky, Missile Command Field Representative at General Dynamics/Pomona accepts a 20 year Service Pin from Col. N. T. Dennis, MAULER Project Manager. Asa Edens, Chief, Field Office, MAULER Project, says that Visosky is the fourth member of his staff to receive a 20 year Service Award.

SOCIETY TO MEET

The Northeast Chapter of the Alabama Society of Professional Engineers will meet at the Southern Cafeteria tomorrow night at 6 p.m., Dinner will begin at 7. Ben F. Robinson, Traffic Engineer for the City of Birmingham will talk on "Traffic Engineering in Birmingham."

METEOROLOGICAL SOCIETY TO MEET

The North Alabama Chapter of the American Meteorological Society will meet Jan. 10, at 8:00 p.m. in Room 218 of the University of Alabama, Huntsville Center.

O. E. Smith of the Aero-Astrophysics Office, Terrestrial Environment Group, will present an analysis of atmospheric parameters as related to the propagation of sound generated by the static test of Saturn boosters. A color, sound film will be shown to illustrate what Marshall Space Flight Center is doing to alleviate the effects of sound on the surrounding community.

YOUR NEW BOOK STORE Has . . .

- Art Supplies
- Exceptional Gifts for All Occasions
- Oil Paintings
- Crane Stationery
- Hallmark Cards

THE BOOK INN

HEART OF HUNTSVILLE SHOPPING CENTER

PHONE 539-2246

"Largest Selection of Children's Books in Town."



BEAUTY . . . For Budget Minded Women !!

PRICE LIST FOR STUDENT WORK UNDER SUPERVISION OF EXPERT INSTRUCTORS!

HOT OIL & OTHER CONDITIONERS \$1.00 & \$1.50
 PERMANENTS \$4.50 UP
 SHAMPOO & SET75 UP
 HAIR CUTS75 UP
 MANICURES \$1.00
 HAIR COLOR \$3.50 UP

PERMANENT SPECIAL!
 MONDAY — TUESDAY — WEDNESDAY
Permanents \$3.50 & Up
 Includes Styling, Haircut, Shampoo, Set

Phone For Appointment 539-2461

NITA & DAVE'S BEAUTY COLLEGE

3215 Governors Drive

Phone 539-2461



A NEW YEAR

—AND A NEW TREND IN

Hair Styling

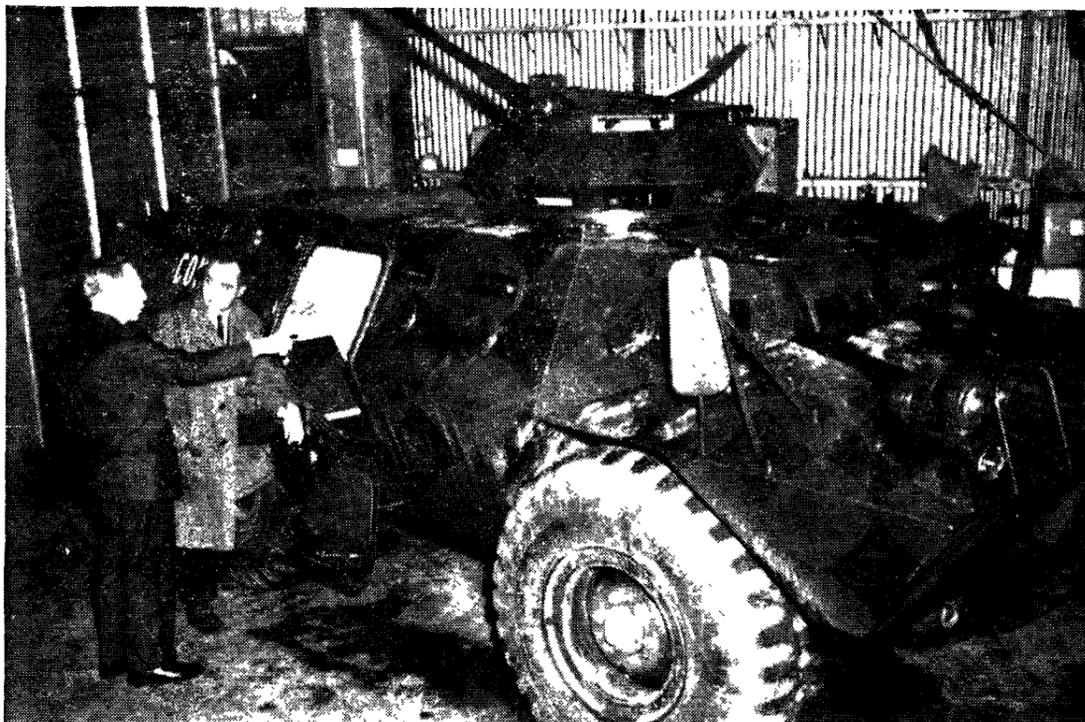
by

Quick's Beauty Salon

ON GREENE STREET

Phone 534-4551 for Your Next Appointment

Your generous support of Radio Free Europe has enabled the network to virtually double its broadcasting power by the addition of four new 250,000 watt shortwave transmitters to RFE facilities near Lisbon. At present RFE broadcasts from 28 powerful transmitters and relay stations in Portugal and West Germany.



HYDRAULIC SYSTEM DISCUSSED—William C. Watson, (right) director of the Ground Support Equipment Laboratory in the Army Missile Command's Directorate of Research and Development, discusses specifications of a new hydraulic system with David I. Nyquist of the Cadillac Gage Company. The hydraulic system was developed for use in the armored vehicle shown here, but is being evaluated for use in Ground Support Equipment for several of the Army's missile systems. Top staff members of the Directorate of Research and Development found that the hydraulic system would swing the vehicle turret a quarter-circle in a second, and elevate the cannon at the rate of seven degrees per second.

**FEDDER'S
ADAPT-O-MATIC
HEAT PUMP**
And
ADD ON AIR CONDITION
THE BEST AT
— LOW PRICES —
"Now Is The Time To Buy"
Installation Available — "We Service What We Sell"
HUNTSVILLE
ROOFING COMPANY
2511 Triana Blvd., SW — Phone 534-7366

Expert —
CLEANING SERVICE
On Your
FUR TRIMMED COAT
by
Valley Cleaners
PARKWAY CITY
Open 7 a.m. to 7:30 p.m.
For Your Convenience!



**School Staff
Members Go
To College**

Two majors at the Army Ordnance Guided Missile School have been named to attend the Command and General Staff College at Fort Leavenworth, Kan., beginning in August. They will follow Maj. Verne C. Wolfe, former chief of Operations, who has already left for the four-month course.

Majors Michael J. Dooley, chief of the Academic Operations Division, and Henry R. Arnold, chief of the Planning Branch in the Office of Operations are the new appointments, according to Col. William J. Macpherson, commandant.

Maj. Arnold attended New Mexico A and M College, Las Cruces, N. M., the University of Alabama Center at Huntsville and has studied through the University of Maryland system of Army courses in Korea. He served in the U. S. Navy during World War II and entered the Army in 1949. He was commissioned May 10, 1952.

Maj. Dooley, son of Mr. and Mrs. Valentine L. Dooley, of 10963 Main St., Cincinnati, was graduated from the University of Cincinnati in 1950. He entered the Army in 1951.

An important factor in Canada's record population growth during the 1950's was the unusually large volume of immigration.

**FINAL
Clearance**
ON ALL FALL & WINTER
MERCHANDISE
1/4 to 1/2 off
on
Boys, Girls, Pre-Teens & Juniors
brother & sister shop
Featuring Juniors 'n' Teens
HEART OF HUNTSVILLE
SHOPPING MALL



"CAREER GIRL" or "HOUSEWIFE"
The Style Is Always Perfect When You
Go to Nita and Dave's!

— FOR BEAUTY DIAL —
NITA'S Beauty Salon
Heart of Huntsville Shopping Mall — Phone 539-1845
**NITA & DAVE'S
SALON OF BEAUTY**
Preston Bldg., Cor. Jordan Lane & Holmes - Ph. 536-8841

PERFECT
**WORKING GIRL
HAIR STYLES!!**
Beautiful to See !!!
Easy to Manage!



PHONE 536-3941 or 536-0779
OPEN EVENINGS BY APPOINTMENT
PLENTY FREE PARKING — EXPERT STYLISTS
GRADY'S BEAUTY SALON
"Corner Governors Drive and Seminole"
2009 SEMINOLE DR., S.W.

SAFETY REPORTS PERFECT TRAFFIC HOLIDAY SCORE

The Safety Office at the Army Missile Support Command reported a perfect score for Army Missile Command elements, the Zeus Project Office and the Army Ordnance Guided Missile School at the end of the holidays.

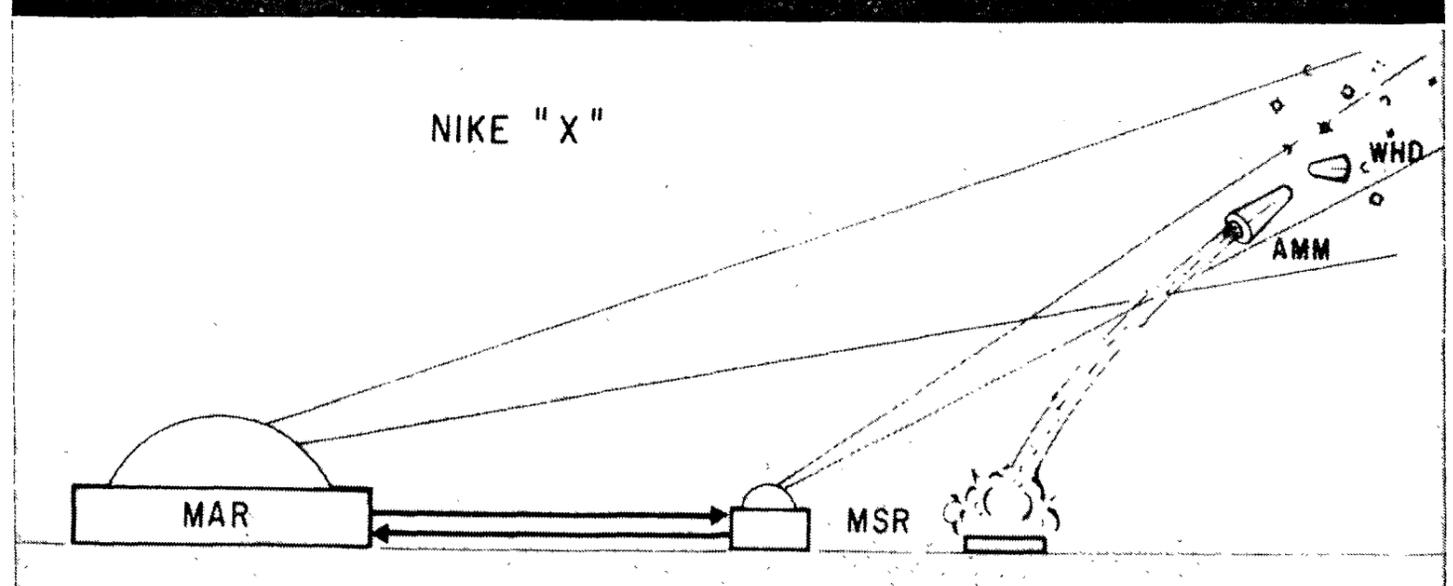
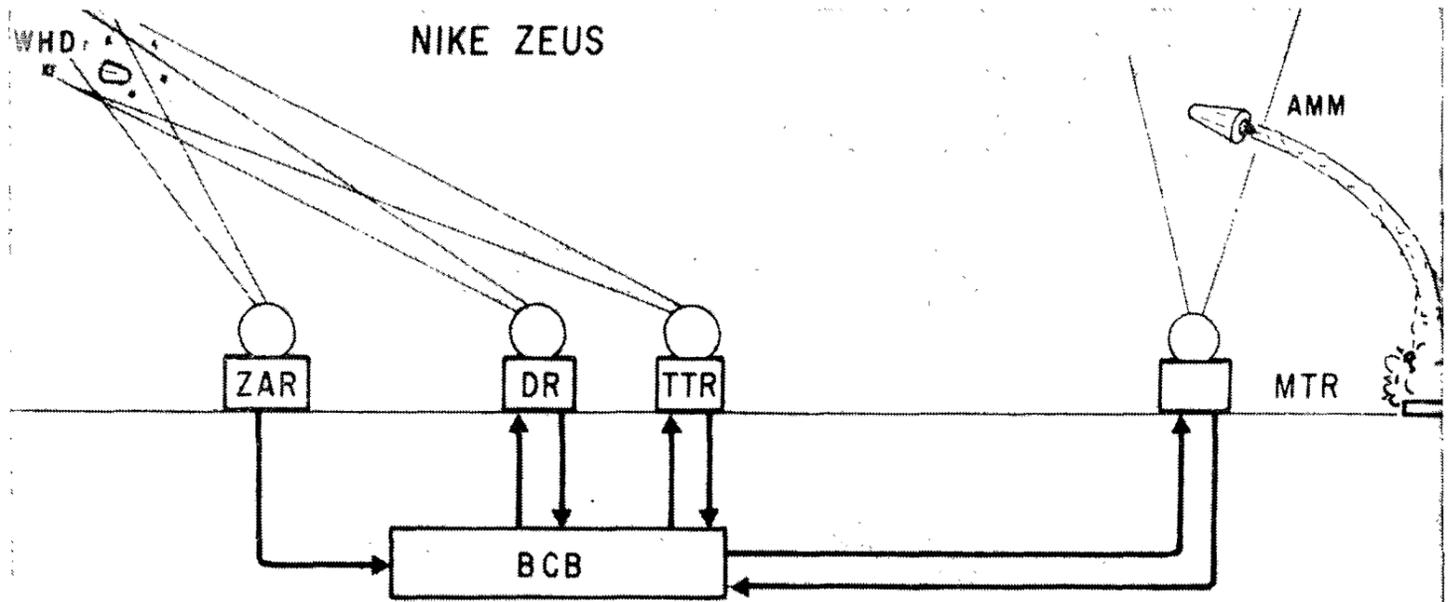
"We had a perfect record," Dillard Womack of Safety said. "As of Monday there were no accidents reported from any element in the Missile Command, or other agencies on post."

About 3,000 students and staff members of the Army Ordnance Guided Missile School returned safely after leaves over the Christmas-New Year holiday period, according to Col. William J. Macpherson, commandant.

Returning from vacations that took them from Mexico to Canada, no fatalities or serious injuries were reported to Paul Hodson, safety officer.

Prior to departure, an all-out safety program was directed at personnel going on leave. This program, credited for the safety record, included a specially prepared video tape and lectures on safety by company commanders. In addition, Col. Macpherson enforced normal Army procedure of requiring departure during daylight hours.

HEALTH BENEFITS. Senate bill amends the Federal Employees Health Benefits Act of 1959 to remove certain inequities. The bill permits enrolled employees to continue their coverage when placed on employees' compensation even though the injury giving rise to compensation benefits occurred prior to enactment of the Health Benefits Act. It also provides that employees who enroll up through December 31, 1963, who otherwise might be ineligible to do so because they did not en-



ZEUS - "X" COMPARED — Block diagrams demonstrating the operation of the U. S. Army's Nike Zeus system (top) and new Nike X system illustrate the changes made in the more advanced anti-missile missile system. Zeus used separate acquisition (ZAR), discrimination (DR) and target track (TTR) radars as well as a bat-

tery control building (BCB) housing the data processing equipment. Nike X will group most or all of these functions in the Multi-Function Array Radar (MAR). Missile Site Radar (MSR) and the X system would replace the individual Missile Track Radars (MTR) of the Zeus system at missile battery sites.

roll at the first opportunity, may continue their coverage after retirement. In addition, the bill includes foster children under fam-

ily enrollments and grants to an enrolled employee who is erroneously removed or suspended, and then restored, an option of

enrolling as a new employee.

Hearings completed in Senate; ordered reported to Senate Post Office and Civil Service Commit-

tee by Health Benefits and Life Insurance Subcommittee. Hearings completed by House Post Office and Civil Service Committee.

At
SNO-WITE

BREAKFAST

SERVED

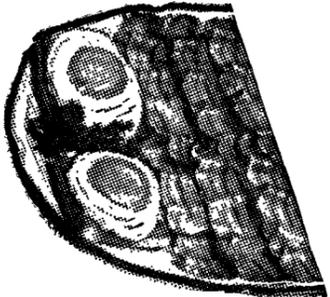
24 HOURS A DAY!

TWO EGGS

Butter, Toast
and Jelly

39c

(Poached or Boiled 10c
Extra)



TWO EGGS

With Ham, Bacon
or Sausage

Butter, Toast
and Jelly **53c**

ONE EGG

With Ham, Bacon
or Sausage

Butter, Toast
and Jelly **42c**

Golden Brown Waffle

With Homemade Syrup
with
**HAM, BACON
or SASUSAGE**

53c

SNO-WITE DRIVE INN

WHITESBURG DRIVE

OPEN 24 HOURS

— 7 DAYS A WEEK

Fabric Enhances Furniture

Add a fresh touch to your home
With Custom Made Draperies

POPULAR
COLORS
Lined or Unlined

★ ★

FREE
INSTALLATION

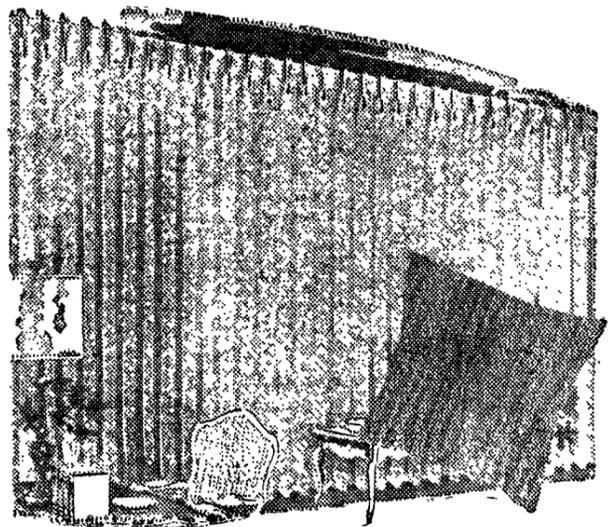
★ ★

FREE
ESTIMATES

★ ★

HOME
SERVICE

★ ★

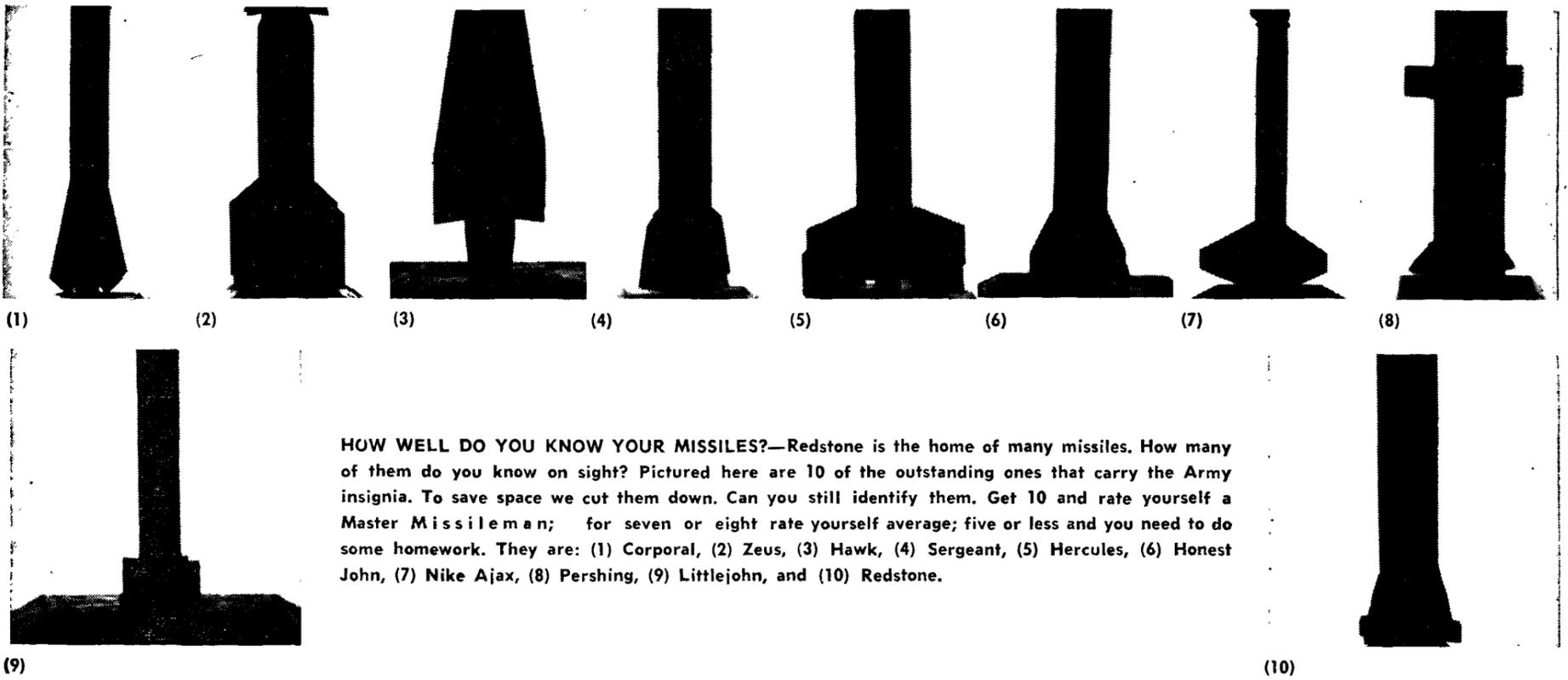


for appointments
call MRS. GAY SYER
534-3541

Mason

**FURNITURE
COMPANY**

W. O. MASON, MGR.
OPEN THURSDAY EVENING
THE MASON BUILDING
115 EAST CLINTON



HOW WELL DO YOU KNOW YOUR MISSILES?—Redstone is the home of many missiles. How many of them do you know on sight? Pictured here are 10 of the outstanding ones that carry the Army insignia. To save space we cut them down. Can you still identify them. Get 10 and rate yourself a **Master Missile Man**; for seven or eight rate yourself average; five or less and you need to do some homework. They are: (1) Corporal, (2) Zeus, (3) Hawk, (4) Sergeant, (5) Hercules, (6) Honest John, (7) Nike Ajax, (8) Pershing, (9) Littlejohn, and (10) Redstone.

Religious Services

RELIGIOUS SERVICES—POST CHAPEL—BLDG. 3714

PROTESTANT
 SUNDAY — 1000 and 1115 hrs., General Protestant Services. (Chapel Nursery open during these Services.)
 Church School — 1000 hrs. — ages 3 years to adult. Classes for children and young people, grades 1 through 12, meet in Chapel Annex, Bldg. 3151. All military and civilian personnel, and their families are welcome.
 Sunday Evening Worship—1900 hrs

CATHOLIC
 SUNDAY — Masses — 7:30 a. m., 8:45 a.m., and 12:30 p.m. and 5 p.m. at the Post Chapel.
 Mass — 11:15 a.m. at Chapel Annex, Building 3151.
 (Chapel Nursery open during Masses at Post Chapel only.)
 TUESDAY — Perpetual Help Novena — 7:30 p.m.
 Confessions — 8 p.m., Choir Practice, 8-9 p.m.
 SATURDAY — Mass — 10 a.m. at Chapel Annex, Bldg. 3151.
 Catechism classes — 9:45 a.m. to 11:45 a.m. at Chapel Annex.
 DAILY MASS — 11 a.m., Tues. through Friday at Post Chapel.
 BAPTISMS — By appointment only.

REDSTONE PARK CHAPEL—BLDG. 9600
 SUNDAY — 0945 hrs. — Sunday School. 1100 hrs. — Morning Worship Service. 1800 hrs. — Youth Fellowship for all young people, age 9 or grade 4 and up. 1900 hrs. — Evening Worship Service. (Nursery is open for both Services.)

JEWISH SERVICES
 Conservative Jewish services will be held weekly each Friday at 2000 hrs. and each Saturday at 1000 hrs. at 2333 Poincianna Street, SW, Huntsville, behind the Scottish Rite Temple which is located at 314 Bob Wallace Avenue, SW.

Reform Jewish Services are held at Temple B'Nai Sholom. 2000 hrs, Friday, at the corner of Lincoln & Clinton Streets, SE, Huntsville. Sunday School at 0930 Avenue, Huntsville. For further information or transportation, call

Christian Science Armed Services Minister, Collect 776-2791.

Rabbi Stein, 536-4771.
CHRISTIAN SCIENCE SERVICES — SUNDAY — 1100 HRS.

Project HOPE's first mercy voyage was to Indonesia, where it performed 700 major operations,

treated 18,000 patients, and trained 500 local physicians and nurses in the latest medical procedures.

For further information concerning these Services, contact

Wednesday services are held at 2000 hrs. at S. White and Wells

The Finest IN NEW AUTO FINANCING

WITH FIVE CONVENIENT OFFICES AT YOUR SERVICE

MAIN OFFICE - BUILDING 3649
 Open
 9:00 A.M. to 4:00 P.M., Daily
 Account and General Information 876-5720
 Loan Department 876-5833
 876-5883
 876-5886

BUILDING 4488 BRANCH OFFICE 876-4879
 Open
 9:30 A.M. to Noon
 12:30 P.M. to 3:30 P.M., Daily

BUILDING 4200 BRANCH OFFICE 876-3347
 Open
 9:30 A.M. to Noon
 12:30 P.M. to 3:30 P.M., Daily

NO. PARKWAY BRANCH OFFICE 539-8865
 2516 North Memorial Parkway
 (Adjoining Pearsall Shopping Center)
 Open
 Noon to 8:00 P.M., Daily
 9:00 A.M. to 5:00 P.M., Saturdays

PARKWAY CITY BRANCH OFFICE 539-5172
 (On the Mall - Parkway City)
 Open
 Noon to 8:00 P.M. Daily
 9:00 A.M. to 5:00 P.M. Saturdays

LOW-COST LOANS

Low-cost loan service to members is at the rate of 8/10% per month on the unpaid balance. For a \$100 loan repaid in twelve months, the cost is only \$5.28.

Loans are granted from \$50 to \$7,500, with repayment periods up to five years for mobile home and real estate financing.

Borrowers insurance provides coverage equal to the outstanding loan balance, subject to terms of the group policy, without additional cost to the borrower.

SERVICES AVAILABLE

- Shares Deposits
- Shares Withdrawals
- Loan Payments
- Loan Disbursements
- New Accounts
- Loan Counseling

Members' paychecks will be cashed when a shares deposit or loan payment is being made.



Those services listed are available at each of the Five Credit Union Offices.

Moving Forward In Service



REDSTONE FEDERAL CREDIT UNION
A Cooperative Savings and Loan Corporation

Redstone Arsenal, Alabama

See our complete selection of fresh, delicious

Russell Stover CANDIES

HUMPHREY'S
Twickenham Pharmacy
REXALL Downtown
 — Free Delivery —
 Dial 536-1581 — Huntsville

Missile Firing 'Squelcher' Invented

A recent invention by a member of the Army Missile Command's Directorate of Research and Development will reduce the possibility of an accidental missile firing because of stray electrical radiation.

William L. Strickland, a Research physicist with the Directorate's Propulsion Laboratory, invented a radio frequency hazard detector which warns missilemen of radiated electrical energy long before the danger level is reached.

Heart of the problem which was tackled by Strickland's invention is the explosive squib, which is used to fire a missile.

Radiated electrical energy from nearby radio transmitters or radar sets can fire the squib accidentally—with possible disastrous results. Missilemen have always been cautious about radio transmitters and other sources of radiated energy, but before Strickland's invention, they had no way of knowing when this energy reached the danger level for a particular missile ignition system.

Even the static electricity in a person's clothing could touch off some squibs.

Determining Hazard

One handicap which Strickland had to overcome was determining when a hazard was present. The skin of a missile might shield out a large portion of radiated electrical energy so that it would never reach the squib. Thus, a reading taken anywhere except inside the squib itself would give a false indication of the danger involved.

To eliminate false readings, Strickland shielded the circuitry and components of his RF hazard detector. Then he used a well known fact that when current flows through a small wire it begins to heat. The sensing element of his detector is a tiny temperature sensitive device placed directly on the bridge wire.

The detector is so sensitive that it will measure the temperature



TO SQUELCH ACCIDENTAL FIRINGS—William L. Strickland, a research physicist with the Propulsion Laboratory in the Army Missile Command's Directorate of Research and Development, takes a reading from a test model of a radio frequency hazard detector on which he recently received a patent. The device detects and helps locate radiated sources of electrical energy which could cause accidental missile firings.

rise caused by as little as .0004 of an amp of electricity regardless of its source. The most sensitive squib requires 1250 times that much current before it will explode.

Squib wire temperature rise may be read from a dial, or the detector may be hooked up to a recorder which traces continuous temperature curves on graph paper. When a dangerous level of

energy is detected the missile crew can disconnect the igniter cabling and attach shorting plugs until the source of the danger is found and corrected.

Direction Finder

The detector also acts as a direction finder when used with an antenna which receives the strongest signal when directly facing the radiated energy. With such a device, dangerous signals may be

found and corrected within a matter of minutes.

In addition to missile sites, the detector is valuable for laboratory personnel who handle explosive squibs. Static electricity in clothing can reach a point where it would ignite a squib. Most squibs have enough explosive force to maim or kill.

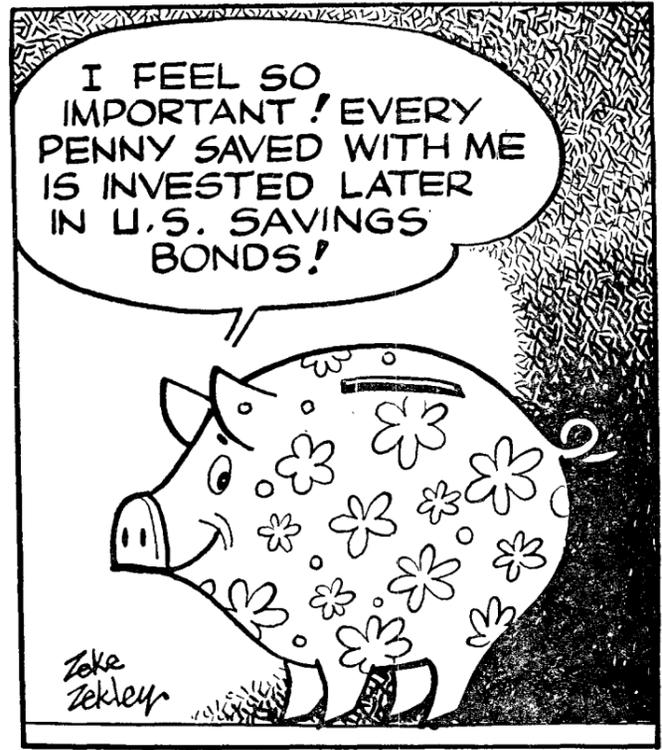
The detector weighs only 2 lbs., and is contained in a palm-sized metal box. With flashlight batteries for power, Strickland built one model in a Littlejohn igniter to demonstrate that the warning circuitry can be modified to fit almost any space or shape.

Its small size and light weight take little from a missile's payload capabilities.

Strickland, with one patent on the detector now, plans to submit another patent application for

later improvements. He believes it possible to make the device small enough to fit into the smallest rockets.

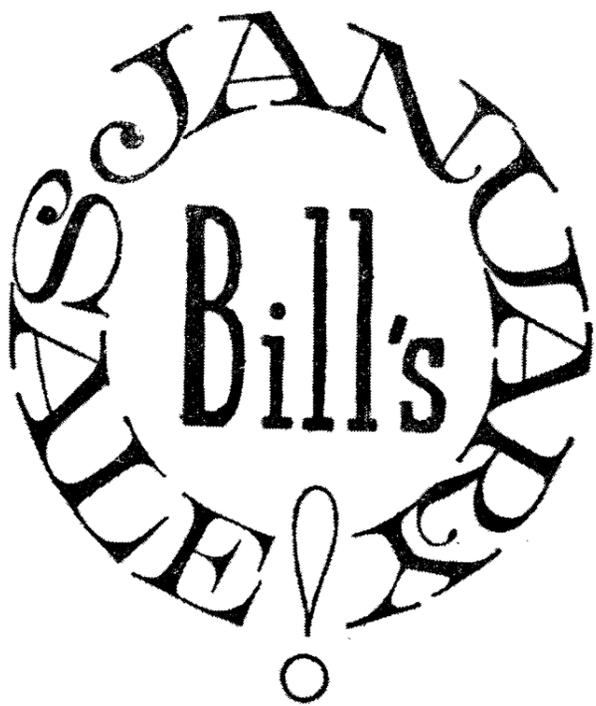
Strickland has been with the Propulsion Laboratory of the Directorate of Research and Development since 1954.



BUSANN'S
YOUR FAMILY SHOE STORE

For every two feet in your family we have the right shoe . . . Value wise prices too!

Downtown Huntsville on Washington St.



Annual January Clearance Of Distinctive Menswear

The complete stock at Bill's has been regrouped and re-priced . . . selections are still good . . . these are only a few of the tremendous values in quality men's wear to be found at Bill's during this sale.

SUITS

Were \$39.95	NOW \$28.88
Were \$49.95	NOW \$34.88
Were \$59.50	NOW \$44.88
Were \$69.50	NOW \$54.88
Were \$89.50	NOW \$68.88
Were \$99.50	NOW \$76.88
Were \$125.00	NOW \$92.88

Special Value Table

Values To \$12.95

Including Pajamas, Shirts, Etc.

\$2.88

Sweaters

1 Group - Values to \$25.00

1/2 PRICE

Slacks

\$4.95 to \$5.95	NOW \$4.88
\$6.95 to \$7.95	NOW \$5.88
\$8.95 to \$9.95	NOW \$6.88
\$10.95 to \$11.95	NOW \$7.88
\$12.95 to \$14.95	NOW \$9.88
\$15.95 to \$16.95	NOW \$11.88
\$17.95 to \$19.95	NOW \$14.88
\$21.95 to \$22.95	NOW \$17.88

All Weather Coats

Most of these coats have zip-out lining to make them ideal for all-weather comfort.

Were \$19.98	NOW \$9.98
Were \$24.95	NOW \$19.88
Were \$39.95	NOW \$28.88
Were \$49.50	NOW \$39.88

Bill's

quality
 MEN'S WEAR

Downtown — Parkway City — Heart of Huntsville



PROMOTE EDUCATION—John H. Goodloe, Plant Manager, Thiokol Chemical Corporation, Alpha Division-Huntsville Plant, presents \$1,000 check to H. Clyde Reeves, vice president in charge of Huntsville Affairs, University of Alabama. This is one of various grants-in-aid by Thiokol to universities throughout the country in areas where Thiokol has operating plants. In the southeastern area, Thiokol made \$1,000. grants to the University of Alabama, Vanderbilt University, and the Georgia School of Technology.

M-Sgt. Sanders Funeral Scheduled At Post Chapel

A military funeral service for M/Sgt. Johnny C. Sanders, 47, was scheduled for yesterday afternoon at the Redstone Post Chapel.

A Soldier of 20 years, Sgt. Sanders died in South Viet Nam Dec. 21 as the result of an accident on Dec. 21.

A native of Madison County his home address is presently listed as Columbia, S. C.

Survivors include the widow, Mrs. Neva Sanders of Columbia; two daughters, Mrs. Carolyn S. Knight, Huntsville, and Miss Wanda Sanders, Columbia, S. C.; five sons, Wayne Sanders, David Sanders, Raymond Sanders and Ricky Sanders, all of Columbia and Gary Sanders, Toney; three sisters, Mrs. Mary Wales, Toney, Mrs. Sarah Mills, Columbia, Tenn., and Mrs. Naomi Rieder, Palm Beach, Fla., two brothers, Glenn D. Sanders and Franklin H. Sanders, both of Huntsville; two grandchildren.

G. R. TAYLOR DIES OF HEART ATTACK IN ARAB

George Robert Taylor, an Army veteran of sixteen years military and civilian service, died of a heart attack in Arab on the last day of 1963.

A program specialist in the Lance Project Office, Mr. Taylor suffered an attack while enroute from his home in Fayetteville, Tenn., to Birmingham. He had been stopped in Arab by the snowstorm that day.

A native Alabamian, Mr. Taylor began his civilian employment at the Arsenal late in 1952. He started with the Consolidated Supply Section of Redstone Arsenal, but five months later he was transferred to the Guidance and Control Laboratory.

At that time the G & C Lab was a component of the Ordnance Missile Laboratories, and Mr. Taylor was one of the original employees of the organization. A Production Control officer, he transferred

with the Laboratory, first to the jurisdiction of the Army Ballistic Missile Agency and later to the Army Missile Command.

In this assignment he was instrumental in the programming phases of the Jupiter and Redstone missile system development.

Mr. Taylor left the Laboratory after ten years to accept a position as Program Specialist for Lance last April.

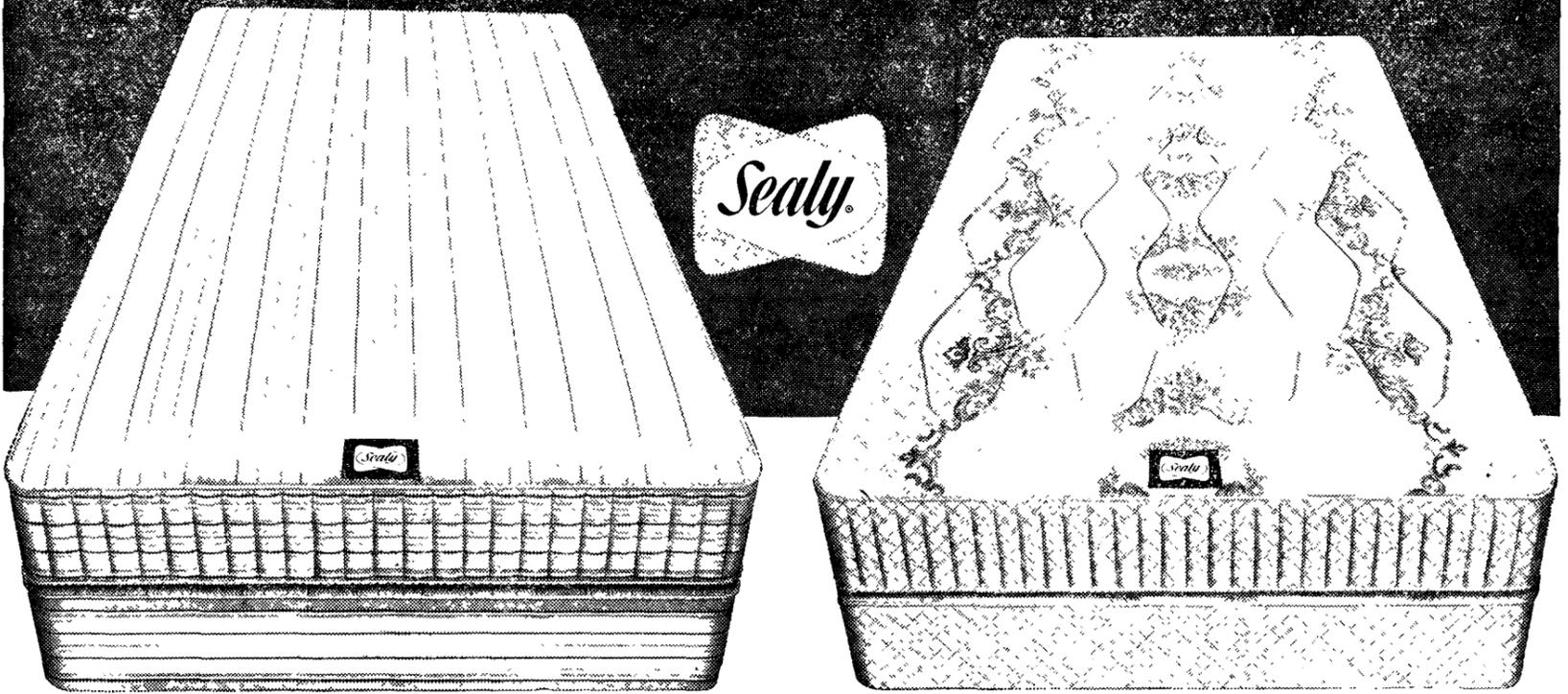
Born in Marion County on May 24, 1916, he received his education at Warrior, Ala., graduating from Corner High School in 1934. He enlisted in the Army in October 1940 and was released from active duty as a Staff Sergeant in September 1945.

Funeral services were conducted in Birmingham last Saturday.

Survivors include the widow, Mrs. Sue Taylor; a daughter, Mrs. Jerry Ann Taylor Pennington; and a son, Bobby Taylor, who is a student at the University of the South at Sewanee, Tenn.

NEVER BEFORE...

2 values in one sale guaranteed like this



THE SAME GUARANTEE AS FOUND ON SEALY'S \$59.50 MATTRESS — ONLY

\$39.88
FULL OR TWIN SIZE
box spring also \$39.88

Sealy 83rd Anniversary

A bedding set with a 10 year guarantee... the same guarantee found on a Sealy mattress priced at \$59.50. Now Sealy's firm 83rd Anniversary Mattress merits the same guarantee of mattresses costing almost \$20 more! Come in today and compare these fine features.

- Famous Sealy FIRM construction
- Heavy 8-oz. woven stripe cover
- Smooth button-free top
- Exclusive Sealy Edge Gards®
- Pre-built borders for added support

SET GUARANTEED 10 YEARS / If structurally defective, free repair first year. Proportionate annual use charges thereafter.

THE SAME GUARANTEE AS FOUND ON SEALY'S \$69.50 MATTRESS — ONLY

\$49.88
FULL OR TWIN SIZE
box spring also \$49.88

Sealy Anniversary Supreme

Fifteen years from now you'll still be enjoying the same superb comfort and support... this set is guaranteed 'til 1979! Up to now this guarantee came only on a Sealy mattress priced at \$69.50. Now it can be offered on Sealy's Anniversary Supreme—selling for \$20 less. Look at all you get!

- Famous Sealy EXTRA FIRM construction
- Sealon cover in smart panel print
- Quilted to luxurious Sealyfoam®
- 312 quality steel innerspring coils
- Edge Gards® prevent sagging borders

SET GUARANTEED 15 YEARS / If structurally defective, free repair first year. Proportionate annual use charges thereafter.



from the makers of the world's finest mattress
SEALY POSTUREPEDIC®
No morning backache from sleeping on a too-soft mattress **\$79.50**

HALE BROS. FURNITURE CO.

106 Jefferson St. — Phone 536-8508 or 536-8509 — Downtown Huntsville

READ THE WANT ADS! USE THE WANT ADS!

WANT AD RATES—\$2.50 minimum, per weekly insertion, covering first 25 words. 8 cents per word for all over 25 words. Cash with copy, except where open account basis is previously established. 25c service charge added for credit. Mail copy with payment to Mrs. Zillah T. Heath, P. O. Box 346, Room 217 Times Bldg., Huntsville. Deadline is Friday noon, before Wednesday publication.

Page 14 The Redstone Rocket — January 8, 1964

1. For Rent

SLEEPING ROOM for 1 or 2. Wall to wall carpet, electric heat, air condition, private bath and entrance, off street parking, reading area and maid service. Phone 539-9197 or 536-9171. ttc

WATERFRONT COTTAGE FOR RENT — Completely furnished, two bedroom, fire place, large livable area, fishing dock. Pine Island S/D—One month or long lease ED NEELY REAL ESTATE, Box 224, Guntersville, Ala., 582-3914. 1-22c

FURNISHED—1 or 2 bedroom apartments on dead-end street away from noise, yet very convenient to Gates 1, 8 and 9. Call 536-0775. ttc

ROOMS FOR RENT—Single and double for men, with good habits, completely and newly decorated, economically priced. Central Y.M.C.A. Dial 534-6452 ttc

FOR RENT—Two nicely furnished 3 room apartments, private bath, tub and shower, private entrance, off street parking, natural gas heat, 417 and 419 East Clinton Ave., Couples only. \$75.00 per mo. Also one 2-room bachelor apartment, upstairs, 419 E. Clinton St., \$60.00 per mo. Phone 534-5127 or 534-4551. ttc

TRAILER PARK — \$18.00 mo. to small family, couples or single man. Located Hwy. 231 So. Convenient to gates 2 and 3, post office, store and school. Large lots. 539-8743. ttc

FOR RENT — TV's, portables, UHF-VHF, by day, week or month. Phone 536-9761. Central TV and Stereo Co., Inc., Corner Governors Drive and Parkway. Open 8 a.m. to 7 p.m. daily. ttc

2. Cars For Sale

ONE OF A KIND — 1960 Renault Caravel Sports Coupe with removable hardtop, low mileage, gleaming red. \$1095.00 Universal Motors Used Car Dept. Phone 539-7456. ttc

CREAM PUFF VOLKSWAGEN SEDAN — 1960 guaranteed mechanically. Universal Motors Used Car Dept. Phone 539-7456. ttc

BY INDIVIDUAL — 1959 Oldsmobile 98, 4 door hardtop, all power, factory air. Extra clean. Phone Arab 586-4574. ttc

GOLDENROD YELLOW and creamy white 1958 Ford Custom 300, 4 door. A fine car well cared for. \$695.00 at Universal Motors Used Car Dept. Phone 539-7456. ttc

1957 CHEVY 4 door. Sold new in Alabama. Good tires, new paint, new seat covers. \$695.00. Universal Motors Used Car Dept. Phone 539-7456. ttc

1961 FALCON 4 door blue and white. New paint, good tires. Reduced to \$895.00. Universal Motors Used Car Dept. Phone 539-7456. ttc

1963 FORD—Looks and drives new. Fairlane 500, 4 door. Many options including leatherette interior. This week only \$2095.00 at Universal Motors Used Car Dept. Phone 539-7456. ttc

WE WILL PAY TOP MONEY FOR YOUR USED CAR! Come to Universal Motors, Inc., Used Car Dept., just north of Oakwood Intersection on North Memorial Parkway. Your VW Dealer. ttc

1958 DODGE — Looks like a new one. Custom Royal Coronet. A beautiful car. 4-door hardtop, new tires, new royal blue and silver paint. New rugs, power steering, power brakes. No money down to qualified buyer. Cash price \$695.00 Universal Motors Used Car Dept. Phone 539-7456. ttc

NICE LIL-OLE '60 MODEL FORD 6 cyl. Str. shift, station wagon, 2 doors \$795.00. At Universal Motors Used Car Dept. No. Memorial Parkway. Phone 539-7456. ttc

1956 OLDS — 4 dr., auto, R&H, good snow tires, very clean \$435.00. 536-4481. Dots on day; 534-3874 night. ttc

RUBY RED 1959 FORD Custom "300". New tires, 6 cyl., auto, radio, nice old car. \$895.00 at Universal Motors Used Car Dept. No. Mem. Parkway, phone 539-7456. ttc

1958 VOLKSWAGEN Station Wagon just repainted back to original color \$795.00 at Universal Motors Inc. Used Car Dept., Phone 539-7456 ttc

CASH! FOR YOUR CAR—We need all makes and models. We will pay you more. We buy and sell imports, too. TEXAS AUTO SALES, Phone 536-6121. ttc

1959 CHEVROLET 2 door Biscayne 6 cyl. S. S., light blue, sound all over. \$995.00 at Universal Motors Used Car Dept. Phone 539-7456. ttc

1963 SUPER SPORT NOVA CHEVY II automatic floor shift, bucket seats, big hub caps, radio, heater, white sidewalls, less than 14,000 actual Huntsville, Ala. miles. Priced for quick sale. Universal Motors Used Car Dept. Phone 539-7456. ttc

3. Miscellaneous

ALL KINDS OF USED FURNITURE Trade-in on mobile homes. All kinds of appliances. See at Texas Auto & Mobile Home Sales, 1003 Meridian. No phone calls please! ttc

A B S SECRETARIAL SERVICE — 408 Clinton Avenue, W., Huntsville, Ala. Phone 534-6451. CALL US FOR: Photocopying, mimeographing, transcribing (Dictaphone), telephone answering. Employment applications prepared (Government and other). Notary Public. (Our office or yours). ttc

FOR SALE—Newly reupholstered couch and chair, like new condition. Phone 539-0382. ttc

5/10/5 Post Liability \$10.00 a Year

Service men, all ranks and ages, also Civilians
W. E. DICKEY INS. AGCY.
PHONE 539-1161
507 Terry Hutchens Bldg. Huntsville, Alabama
Open Monday, Thursday and Friday nights from 5:00 to 9:00 p.m.

Governors Drive Barber Shop

2901 Governors Drive
Between Butler High and Parkway
REG. HAIRCUTS — \$1.25
Flat Top Specialists
OPEN 8 TO 8 . . . 6 DAYS A WEEK

SPECIAL

FROM
Universal Motors Used Car Dept.

1961 FALCON
4 dr., 2-tone, blue and white, radio, heater, good white sidewalls.

\$895.00

2305 No. Mem. Pkwy.
PHONE 539-7456

SPECIAL

MME. HEDY FIORI, European opera and concert singer, instructor in voice, phonetics and piano, few openings. Call 536-9020 1-16c

FOR SALE — Armstrong Elkhart Silver Flute, excellent condition. Price \$90.00. See at 404 Glenco Road, Huntsville, or call 881-3187. 1tp

MODERN HEALTH CLUB SERVICES—Central Y.M.C.A., 203 South Greene St. is offering massages, turkish baths, electric heat, cabinets, ultra-violet and infra-red lamps, diathermy sun lamp, swimming pool. Graduate masseur in charge. Phone 534-2444. ttc

NEW UHF CONVERTERS \$11.97

North Alabama's largest sales and service dealer for Zenith, RCA and Motorola TV and Stereo. Our prices are equal to or lower than advertised so called "discount or wholesale" prices. Price, then compare. Our merchandise is visually priced tagged at all times. We accept trade-ins. Used TVs sold for \$20 and up. We service all makes and models. Picture tubes, 21 in. 90 degrees, \$21.00 exchange with 1 year guarantee. TV rentals by day, week or month.
CENTRAL TV & STEREO CO.
Cor. Governors Drive & Parkway
Phone 536-9761

4. Mobile Homes

EQUITY SALE of 50X10, 2 bedroom trailer. Phone 852-1810 ttc

SEE OUR FULL LINE OF — Mobile Homes— or we'll both lose money! We trade for anything! easy terms. Come see the friendly folks at Texas Auto Sales, 1003 Meridian St., phone 536-6121. ttc

53 X 10 STYLELINE, 1 bedroom Early American attached to 31X8 Schult. Also has 12X8 Cabana room and 40 ft. aluminum awning. On lot next to new swimming pool. Ready to move into. Small down payment and 5 years on balance. Price for all, \$3895. TEXAS MOBILE HOME SALES, 1003 Meridian St. 536-6121. ttc

RADIATOR SALES & SERVICE

We pick up and deliver. All repairs by Frank Taylor, who has 33 yrs. experience in radiator work. All work guaranteed.
Phone 536-7562

Space City Motors, Inc.

2204 Holmes Ave., N.W.
HUNTSVILLE, ALABAMA

HUNTING and CAMPING EQUIPMENT

- Hip Boots
- Sleeping Bags
- Insulated Underwear

ARMY-NAVY SURPLUS CO.

112 S. SIDE SQUARE
Phone 534-6991
Open All Day Wednesday and 'Til Late Thursday Night

WHEEL ALIGNMENT

\$4.88

(With This Ad)
Reg. \$6.50 Value)
Fast Service - Expert Wheel Mechanic

All Work Fully Guaranteed U. S. TIRE SERVICE

Across From Butler High
DIAL 539-3482
Open 7 a.m. to 6 p.m.

5. Houses, Lots - Sale

FOR SALE—428 Acre Farm located about five (5) miles from Guntersville, no houses, has lots of young timber, corn rent 1963 was more than \$700.00 Price \$45.00 per acre. Call Guntersville 582-3027, 582-5313 or 582-5409. 1-7c

BEAUTIFUL WOODED HOME SITE—On North Meridian Pike just opposite Mt. Sharron Estates, gradual sloping hillside overlooks eastern valley. Pines, cedar and oak garnish this 200 front ft. lot. 1-3/10 acres of natural beauty priced below market value for quick sale. \$4,250 Call 539-8244 or 539-7456. Ask for W. E. Harrison. ttc

1 ACRE COMMERCIAL PROPERTY in Gasoline Alley, Hwy. 231 So. of Whitesburg Bridge. 210' Hwy. frontage. Ideal for service station or 7 to 11 Grocery. 539-8743. Consider trade. ttc

FOR SALE!

19 ACRES located 12 miles northeast of Cullman, 38 miles of Huntsville — COUNTRY ESTATES, all city conveniences. Large 3 bedroom brick home, 2 good wells, 1700 sq. ft. of living space, large oak shade tree, 2 full baths, gas heat, large patio and barbecue pit, large barn, two 10,000 capacity chicken houses, good fish pond, fallout shelter, fenced and cross fenced. All this for only \$27,500.00.

22 ACRES, choice retirement property, tract located in a thickly settled community, 20 miles south of Huntsville on black-top highway. Area is a highly developed agricultural section. Has 6 room dwelling, 3 bedrooms, bath, fine well, good barn, won't last long. \$8,000.00 E. G. WILLIAMSON, Real Estate Broker, pho. 734-6294, Cullman, Alabama. ttc

Glen Park APARTMENTS

Completely furnished including air conditioning and TV outlet, lovely 2 bedroom, living room, kitchen and ceramic tile bath. Convenient to schools, churches and shopping.

852-0131

AUTO

POST LIABILITY INSURANCE
\$5/10 Bodily Injury
\$5000 Property Damage

\$10.00 year

C. J. WAITE

INSURANCE AGENCY
518 Madison St.
PHONE 536-9641

Universal Motors Inc. Used Car Dept.

Consistently Offers Better

Reconditioned AUTOMOBILES!
FORDS, CHEVROLETS, PLYMOUTHs, OLDSMOBILES, ETC.

Also Many Economy Imports and of Course Guaranteed Used Volkswagens.

Your VW Dealer
No. Memorial Parkway
PHONE 539-7456

BUTLER'S NEW and USED FURNITURE

American — Antiques — Import

1006 W. Market St. — Athens, Alabama

One of North Alabama's Largest Furniture Stores

ACROSS FROM FAIRGROUND GATES

Dial Athens 232-3940

FOR SALE BY OWNER

3 BEDROOM, 2 BATH TRI-LEVEL
ON BEAUTIFUL LEVEL LOT!

Attached Garage — Big Kitchen with Eating Area — Master Bedroom Has His and Hers Double Closets — Family Room Approx. 18'x30' — 2,000 Sq. Ft. Living Area.

PURCHASE FHA EQUITY OF \$1500.00 AND ASSUME PAYMENTS.

Phone 852-2063 or Robinson 539-7456

LOANS

\$325 to \$1500

To Consolidate Bills — To Repair House For Other Purposes

Phone 536-9675

For Your Money TODAY!

G. F. C. CREDIT CORP.

218 Holmes Ave., N.E. Times Bldg.

COMMERCIAL BUILDINGS

AND . . .

LOTS FOR SALE! FOR DWELLINGS

We build houses on your lot . . . 100% financed by us or VA and FHA financing. Built by Bonded Builders.

COLORED—If you have a good job, steady income and good credit you can buy a home in Love Sub-division V.A. or F.H.A. or we will build on your lot 100% financing. We have a few homes with payments from \$61.00 to \$65.00 per month.

C. F. STINNETT REAL ESTATE BROKER

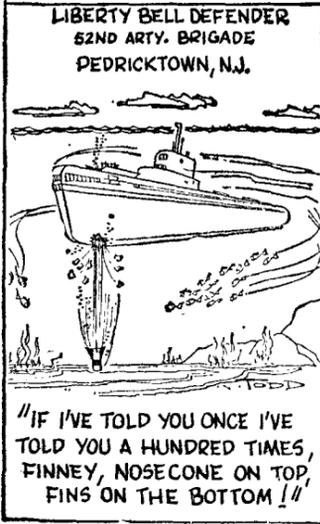
918 Meridian St., North

Phone 536-8537



READING IMPROVEMENT TIPS—Lawrence Williams (left center) of the Missile Support Command's Training and Development staff talks with three participants of a reading improvement demonstration conducted recently for faculty members of Council Training School in Huntsville. From left are Mrs. Clara Roberson, a teacher; Williams; Mrs. V. W. Adams, guidance counselor; and A. G. Adams, principal of the school. About 30 faculty members of the school attended the demonstration.

CARTOON OF THE MONTH



Thousands of Americans received their Federal income tax refund in Savings Bonds last year. Taxpayers getting refunds this year will enjoy the same privilege. Just check the box that says "U. S. Savings Bonds."

G. I. SPECIAL

Full Brick, 4 Bedrooms, 2 Ceramic Tile Baths, Separate Dining Room, Large Paneled Den, Built-in G.E. Kitchen Featuring Oven, Surface Unit, Dishwasher, and Garbage Disposal, Centrally Air Conditioned. Located in Southeast Huntsville on Louis Drive. Ready for Immediate Occupancy.

\$22,300

NO MONEY DOWN . . .

NO CLOSING COST V.A.

ENSOR REAL ESTATE

Phone 881-0152

**Decatur
HIGHLAND PARK**

This beautiful new brick show home will be sold for \$19,650.00 in this low price. There are following many features and extras: Fully equipped kitchen includes disposal, oven, surface unit, dishwasher and refrigerator. All color toned. Laundry contains washer and dryer. 3 bedrooms, 2 ceramic tile baths, large paneled den, central air condition. The many rooms of decorator furniture will be given to the purchaser at no additional cost.

Low Dn. Pmt. No Dn. Pmt.
FHA V.A.

\$150.00 Closing

See at 1007 - 8th Ave., S.W., or Pho. Decatur 353-3474

**Up in the air with
a money problem?**



Get a loan from HFC

For real down-to-earth help with any money problem, see HFC. More than 100,000 servicemen every year borrow with confidence from our military loan specialists; you can, too. Get a Travelon for going home, a Shopper's Loan for clothes or a car, a Payment Reducer or Bill Payer Loan to consolidate debts. Just ask us. We know the best way to meet your need!

Cash You Get	MONTHLY PAYMENT PLANS		
	30 months	24 months	12 months
\$500		\$24.73	\$46.81
700		34.30	64.92
1000	\$40.05	48.76	92.30
1500	59.80	72.80	137.80
2000	78.96	96.13	181.96

TABLE SHOWS SOME OF OUR TYPICAL LOANS AND CONVENIENT TERMS. ASK ABOUT OTHERS.

Payments above include principal and loan charges if repaid according to schedule, but do not include life and disability insurance, available at group rates.

HOUSEHOLD FINANCE *HFC*
Company of Alabama

HUNTSVILLE OFFICE
706 Heart of Huntsville Shopping Cir.
PHONE: 539-4496

Hours: Mon., Tues., Wed., Fri. 9:30 to 5:30—Thurs. 11 to 8 P.M.
Loans made to residents within a 100 mile radius

COME IN—WE'LL TRADE TODAY!

OUR CARS ARE
PRICED TO GO

DURING OUR 1964
CLEARANCE SALE!!

Big Trade-In Allowances On Our '64s



Prices Begin At \$1896



\$2435 550 Classic 4-Door Wagon is the beginning price.

ALL PRICES INCLUDE THESE FEATURES AS STD. EQ. Oil filter, double braking system, ceramic covered mufflers and tail pipes, uni-body construction, signal lights, self-adjusting brakes, coil spring seats, sound-absorbing fibre headliner, front arm rests and many other features.

FINE-LOOKING SELECT TRADE-INS:

- 1961 CHEVROLET — 4 door, radio, heater, automatic transmission. \$1175.
- 1961 CHEVROLET — 4 door Radio, heater, automatic transmission. V-8. \$1575
- 1960 CHEVROLET — 2 door. Radio, heater. \$1175.
- 1959 CHEVROLET — 2 door. Radio, heater, standard shift \$775.
- 1956 CHEVROLET — 2 door. Radio, heater, automatic transmission \$375.
- 1955 CADILLAC — 2 door Hardtop. Full power, radio, heater, automatic transmission. \$475.
- 1955 BUICK — Special 4 door, Radio, heater, automatic transmission. \$450.
- 1962 FORD — Falcon. Radio, heater, str. shift, bucket seats. \$1375.
- (2) 1960 FORD — Pickup Trucks. \$875. each.
- 1959 FORD — 2 door. Radio, heater, automatic transmission. \$875.
- 1959 FORD — 4 door. Rad'io, heater, automatic transmission, Power Steering, Power Brakes, factory air. \$1275.
- (2) 1957 FORD Station Wagons 4 door. Radio, heater, automatic transmission. \$450.
- 1956 FORD — 2 door Hardtop. Rad'io, heater, standard shift. \$275.
- 1956 FORD — Station Wagon, 4 door, Radio, and heater. \$375.
- 1957 PONTIAC — 4 door Hardtop, Radio, heater, automatic transmission, Power Steering, Power Brakes. \$575.
- 1955 PONTIAC — Station Wagon. \$175.
- 1960 PLYMOUTH — Station Wagon 4 door Radio, heater, automatic transmission. \$1,000.
- (2) 1960 PLYMOUTH — 2 door. Heater, straight shift. \$875 each
- 1958 PLYMOUTH — 2 door Hardtop, heater, radio, automatic transmission. \$675.
- 1956 PLYMOUTH — 2 door. Radio, heater, automatic transmission. \$175.
- 1960 RAMBLER — 4 door Station Wagon, radio, heater, straight shift. \$975.
- 1959 RAMBLER — Station Wagon, radio, heater, automatic transmission. \$575.
- 1961 RENAULT. \$575.
- 1961 OPEL — Station Wagon. \$750.
- 1957 DESOTO — 4 door, radio, heater, automatic transmission. \$300.
- 1955 METROPOLITAN — \$575.

BILL PENNEY RAMBLER

"Trade With Penney and Save Dollars"
529 MERIDIAN ● TELEPHONE 534-4514

CALL US! WE'LL COME BY FOR YOU!!

IF YOU HAVEN'T SEEN OUR USED CARS LOOK THEM OVER THIS WEEK-END

TAKE A LOOK AT OUR NEW 1964 RAMBLER!

Col. Frank C. Gay Retires

Lt. Col. Frank C. Gay, Commodity Manager of the Honest John-Littlejohn and Redstone missile systems, will end his military career this month when he retires from the Army Missile Command.

Col. Gay's retirement on December 31 comes after 20 years of active duty, nearly five of which have been spent at Redstone Arsenal. He has served as Commodity Manager since October, 1962.

Prince Danley, a member of Col. Gay's office staff, has been named acting chief.

Col. Gay said he has no immediate plans for the future.

"We probably will stay on in the Huntsville area," he says.

A native of Warren, Pa., where he was born May 14, 1915, Col. Gay graduated from Ohio Wesleyan University in 1938 with a B.A. degree in business administration. He entered the Army on May 17, 1941.

After basic training at Aberdeen Proving Ground, Md., he remained there to attend the Ordnance Officer's Candidate School receiving his commission in February, 1943.

Col. Gay spent the next three years at the Los Angeles Port of Embarkation before leaving the service in 1946. He was recalled in 1948 and was assigned to the Letterkenny Ordnance Depot, Pa. He then went to Japan in early 1949 for a three-year tour with Headquarters, Central Command, in Yokohama.

It was here that Col. Gay was awarded the Army Commendation Ribbon in 1951 for his efforts in establishing a modern, well-organized supply system.

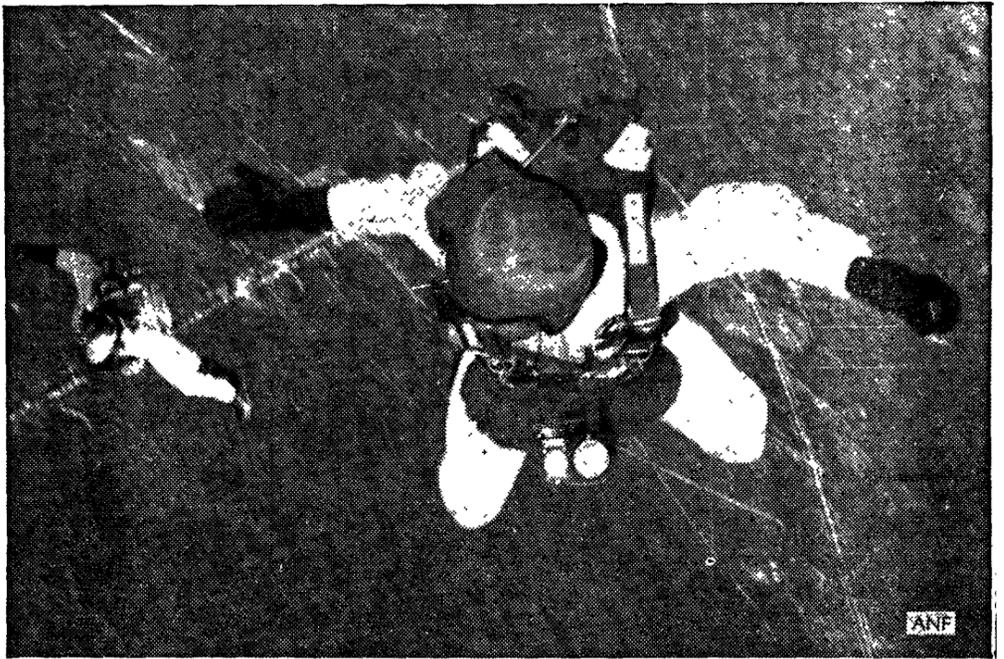
His next assignment carried

him to Washington where he served in the office of Chief of Ordnance, first in the Management Office and later in the Industrial Division. He left the United States again in 1956 for a three-year tour with SHAPE in Fontainebleau, France, prior to coming to Redstone Arsenal in 1959.

Assigned to what was then the Army Ordnance Missile Command, Col. Gay served as Executive Officer to the Assistant Chief of Staff, Industrial Operations. In August, 1961, he was assigned to the Army Ballistic Missile Agency as Senior Weapons System Project Officer for rockets.

From January through October, 1962, he was Project Manager of the Littlejohn system and when Littlejohn/Honest John offices were combined, he was made Commodity Manager.

Col. Gay is married to the former Mildred C. Nelson and they have two daughters, Leslie Diane and Laurie Ann.



LOOK MA, NO HANDS—Two high-flying members of the U.S. Army's Parachute Team, the Golden Knights, get in some mid-air antics in preparation for their appearance on CBS-TV's "Sunday Sports Spectacular" on December 29. S/Sgt Richard T. Fortenberry (foreground) has a 16mm movie camera attached to his helmet to capture the free fall action for the television screen. Sergeant Fortenberry, the current Parachute Champion, is from Litchfield, Ill.



LT. COL. F. C. GAY

Deputy Commander Receives Award

For "fostering an east-west relationship with a strategic ally" Maj. Gen. Jean E. Engler, Deputy Commanding General, U. S. Army Materiel Command, was awarded the Distinguished Service Medal.

The medal was presented by Lt. Gen. Frank S. Besson, Jr., Commanding General, Army Materiel Command, in special ceremonies at his headquarters at Gravelly Point, Washington, D. C.

The award was made for Gen. Engler's service as Commanding General, U. S. Army, Japan, from May, 1961, to September, 1963.

RETIREMENT. Senate bill amends the Civil Service Retirement Act to provide for optional retirement on full annuity at age 65 after 30 years' service.

Hearings completed in Senate; pending before Retirement Subcommittee, Senate Post Office and Civil Service Committee. Hearings completed in House on related bills; pending before Legislative Subcommittee, House Post Office and Civil Service Committee.

House bill amends the Civil Service Retirement Act to permit the recovery by the Government of amounts due the Government in the settlement of claims under such Act.

Passed House; pending before Retirement Subcommittee, Senate Post Office and Civil Service Committee.

final
REDUCTIONS

effective

THURS. MORNING

during our

GREAT SALE!

SAVINGS UP TO **1/2** OR MORE

DURING THE LAST DAYS OF OUR SEMI-ANNUAL
SALE

MALL STORE HOURS: 10 a.m. to 9 p.m.

DOWNTOWN:

Thursday & Friday 9 a.m. to 8 p.m.

Open Saturday 'til 6 p.m.

