

# The Redstone Rocket

Published by Jack W. Hofthaus, a private individual, at Hartselle, Ala. Opinions expressed by the publisher and writers herein are their own and are not to be considered an official expression by the Department of the Army. The appearance of advertisement in this publication does not constitute an endorsement by the Department of the Army of the products or services advertised.

VOL. IX; NO. 9

REDSTONE ARSENAL, HUNTSVILLE, ALABAMA

JULY 6, 1960

## Civil Service Employees Receive 7½% More Pay

### Congress Votes Money to Boost Class Act Checks

A bill to provide a 7½ per cent pay increase for Class Act Civil Service employees became law last Friday when both the House and Senate voted to override President Eisenhower's veto.

The bill affects approximately 8,500 employees at Redstone Arsenal and will increase the payroll by at least four million dollars.

In total, the bill will affect 1½ million Federal employees.

Only Class Act employees are affected. Wage Board employees received a pay increase earlier this year.

The vote in the House to override the President's veto was 341 to 69. This was 68 votes more than two-thirds majority needed to pass the bill over the President's disapproval.

Eisenhower had previously vetoed 168 bills since taking office and been overridden only once.

### POST ENGINEER EMPLOYEES HELP FELLOW WORKER

Employees of the Post Engineer donated more than \$900 to help a fellow employee who has been hospitalized and undergone two brain operations since last November.

He is Charles W. Barnes, employed in the Steam System Section of the Utilities Branch.

Barnes and his wife have four children, ages seven months through thirteen years.

The drive, which ended last Friday, was conducted on a voluntary basis for a two-week period. Robert E. Lee, chief, Boiler Plants 5000 Area Unit, was the chairman.

Barnes is expected to return to work this week.

## PERSHING FIRED SUCCESSFULLY ON ZIG ZAG COURSE

The Army put its Pershing ballistic missile through a planned mid-air zig-zag today in a successful firing from Cape Canaveral, Fla., at 11 a.m. CDT.

All five Pershings fired so far in the development program have met their test objectives.

Col. Richard M. Hurst, Commander of the Army Ballistic Missile Agency, said the erratic movement had been pre-set to test the missile's structure and control system under the severe stress imposed by sudden changes in direction. ABMA, an element of the Army Ordnance Missile Command, is developing the solid-fueled Pershing as a replacement for the liquid-fueled Redstone already in the hands of troops.

The maneuvers in today's firing simulated severe wind conditions aloft such as might be encountered in a combat firing of the all-weather weapon.

Only the missile's first stage was fired. It carried a dummy second stage motor.

Personnel of the Martin Company, Orlando, Fla., the prime system contractor, assisted in firing the missile. It was launched from a tactical-type transporter-erector-launcher made by TAPCO of Cleveland, Ohio, one of several items of ground support equipment designed to give the Pershing the highly-mobile, "Shoot and Scoot" capability of smaller weapons in the Army's family of missiles.

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## DR. RUDOLPH IS NEW DIVISION DIRECTOR AT ABMA

Thirty years in rocketry! Few scientists or engineers can claim this distinction in a field which only recently has stirred the imagination of people everywhere. But that is the record of Dr. Arthur Rudolph, director of the new Research and Development arm of the Army Ballistic Missile Agency.

Rocket research and development for Dr. Rudolph, an American citizen since November, 1954, began in Berlin in 1930. Working there with Dr. Heylandt and Max Valier, other German rocket pioneers, he helped develop the first reliably operating liquid-fueled rocket motor. Placed in an automobile to demonstrate its possibilities, the engine developed 450 pounds of sustained thrust for 10 minutes.

Dr. Rudolph's new directorate replaced the Development Operations Division of ABMA which was transferred to the National Aeronautics and Space Administration July 1. Approximately 500 persons have already been committed to positions within the directorate, and the build-up will continue for several months.

Physical transfer of the personnel and the missile projects to the directorate began July 1, and (See DR. RUDOLPH on Page 3)

## Supplement To Honest John Contract Signed

The Department of the Army July 1 announced the signing of a supplemental contract with Douglas Aircraft Company Charlotte, N.C. in the amount of \$1,213,489 for manufacture of components for the improved Honest John rocket.

The components to be manufactured include the pedestal, motor fairing, and fins. All of the (See HONEST JOHN on Page 3)

## Saturn Used As Symbol In ABMA-NASA Transfer

### Saturn Test Tower Contract Awarded Greenhut Company

The Greenhut Construction Company, Inc., of Pensacola, Fla., will build a lofty steel dynamic test tower at Redstone Arsenal, for testing the fully assembled multi-stage Saturn rocket.

Col. R. W. Love, U. S. Army District Engineer at Mobile, announced today the award of a contract amounting to \$609,665.75 to the Pensacola firm, which submitted the lowest of the fifteen bids the Corps of Engineers received for the construction job.

The new test facility will consist of a structural steel tower 204 feet high, surmounted by a 75-ton stiffleg derrick. A steel su- (See SATURN on Page 3)

### COL. FULLER WILL REPRESENT AREA ENGINEER HERE

Col. Cecil H. Fuller has reported to Redstone Arsenal where he will serve as Missiles Officer for the Mobile District, U. S. Army Corps of Engineers, and Assistant District Engineer.

He succeeds Col. Jay P. Dawley, who has been reassigned to Army duty in Hawaii.

The new Engineer Missiles Officer was commissioned a second lieutenant of the Corps of Engineers, Reserve, upon graduation from the Virginia Polytechnic Institute at Blackburg in 1935. He was later integrated into the Regular Army. He has served in both the Asiatic and European theaters and as General Staff Officer.

While assigned to the Office of (See COL. FULLER on Page 3)

### Gen. Schomburg Officially Turns Over Division

The official transfer of the Army Ballistic Missile Agency's (ABMA) Development Operations Division to the National Aeronautics and Space Administration (NASA) took place at 9:30 a.m. (CDT) today in a brief ceremony at Redstone Arsenal.

Maj. Gen. August Schomburg, Commanding General of the Army Ordnance Missile Command, presented to Dr. Wernher von Braun, chief of NASA's George C. Marshall Space Flight Center at Redstone, a model of the Saturn vehicle booster as a symbol of the event.

The Saturn rocket, under development by NASA, will be used for general work in the heavy space vehicle field.

Col. Richard M. Hurst, Commander of ABMA, made the opening remarks at the ceremony and introduced Gen. Schomburg. Col. Hurst said that "although the formality of a single organization will no longer exist, there will continue a community of interest in the cooperative promotion of our separate programs."

In turning over the facilities, Gen. Schomburg pointed out that the Army Ordnance Missile Command and NASA "will always have much in common." He stated that it would be his policy for the two organizations to "work together as closely as our common interests and our missions permit." He wished the group "the same full measure of success which crowned the work of your team as members of the United States Army."

(See ABMA on Page 2)

\* \* \*

## Atlas Will Be Used As Target for Nike Zeus

### Modified Jupiters Will Not Be Used

WASHINGTON, D.C. — Atlas ICBM missiles will be used as targets to test the Army's Nike Zeus anti-missile system, the Department of Defense announced.

Under the new test program, Atlas missiles will be fired from Vandenberg Air Force Base on the Pacific Missile Range and engaged by Nike Zeus missiles fired from the installation on Kwajalein Island. Kwajalein Island is about 4,800 statute miles from Vandenberg.

A prototype of the Nike Zeus system is being installed on Kwajalein Island at the present time. The original plan to test Nike Zeus against modified Jupiter IRBMs is being dropped.

Atlas target missiles will be purchased by the Army and fired from Vandenberg under Army direction. Tentatively, 18 Atlas missiles will be purchased for this purpose. In addition Atlas missiles fired as part of regular Air Force crew training operations from Vandenberg will also be used to test Nike Zeus.

The original plan called for Jupiter IRBMs fired by Army personnel from Johnston Island in the Pacific to fill two roles in the Zeus test program. First it was

planned to use the Jupiters to test the early Zeus system including computers and radar. Later it was planned to use modified Jupiters to simulate ICBM trajectories to provide full-scale tests of the Nike Zeus system.

Dr. Herbert York, Defense Director of Research and Engineering, earlier this year recommended that the Jupiter program be dropped and that the Atlas program be substituted for it. Dr. York's decision was made on the basis of technical considerations concerning the best way to pro- (See ATLAS on Page 2)

## NORTH AMERICAN GETS TARGET MISSILE CONTRACT

The Army awarded the Columbus Division of North American Aviation Inc., a contract for fabrication and flight testing of a high and low level supersonic target missile system last week.

The initial contract for a minimum number of missiles will carry well over into 1961, Army spokesmen predicted. The award totals \$3,940,581. The Army Rocket and Guided Missile Agency is responsible for system develop- (See ARGMA on Page 2)



SATURN USED AS SYMBOL—Maj. Gen. August Schomburg (right), Commanding General, AOMC, speaking at ceremonies July 1 transferring ABMA Development Operations Division to the National Aeronautics and Space Administration. Dr. Wernher von Braun (on Gen. Schomburg's right), Chief of NASA's George C. Marshall Space Flight Center at Redstone Arsenal, accepted the transfer of 4,700 civil service personnel and more than \$100,000,000 in facilities and equipment for NASA. A model of the Saturn space vehicle which is the MSFC's principal project was presented to Dr. von Braun by Gen. Schomburg as a symbol of the event. Col. Richard M. Hurst (partially concealed by the Saturn model), Commander of ABMA, made the opening remarks and introduced Gen. Schomburg.

# The Redstone Rocket

The Redstone Rocket is a privately owned newspaper published every Wednesday at no expense to the Government by Jack W. Hoffhaus, Hartselle, Alabama, with exclusive regard for the reader interests of personnel at Redstone Arsenal, Alabama, in accordance with an agreement between the publisher and the Public Information Office, Army Ordnance Missile Command, Redstone Arsenal, Alabama.

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## ATLAS

(Continued from Page 1)

vide a thorough test of the capabilities of the Zeus system including such factors as reentry velocities and associated reentry phenomena and payload capacities.

Dr. York's proposals were reviewed and endorsed last month by a special committee of scientists at the request of the Secretary of Defense and Dr. George Kistiakowsky, special assistant to the President.

Secretary Gates directed revision of the target missile program after receiving the endorsement of the special committee.

Approximately \$7.5 million had been obligated toward acquiring and using Jupiter in the Zeus program before work was suspended pending a review of the target missile plan.

Jupiter missiles, developed by the Army and later assigned to the Air Force, are being produced for tactical use by Chrysler Corporation at the Michigan Ordnance Missile Plant. Production of tactical missiles is expected to be completed by the end of this year.

Under the original plan Chrysler was to begin delivering modified Jupiters for use in the Zeus test program as soon as tactical missile production was completed. Toward this end the Army obligated approximately \$5,000,000 to Chrysler earlier this year in order that Chrysler could begin making certain components with long manufacturing lead-time.

This contract is being terminated in accordance with the revised program. In addition, the Army Ordnance Missile Command Redstone Arsenal, Huntsville, Ala., had obligated \$1,000,000 toward the manufacture of Jupiters to be used in the Zeus testing program. Another \$1,500,000 had been obligated in preliminary work for the construction of Jupiter launch-

ing facilities on Johnston Island. Further work on the Johnston Island facilities has been terminated.

Zeus, the only defense against ICBMs now under development in the Free World, is an extension of the Army's now operational Nike Ajax and Nike Hercules air defense systems. Hercules and the earlier Ajax were designed primarily to defend the field Army and large population and industrial centers throughout the U. S. against high performance jet aircraft. Hercules has been improved in recent months to a point where it is now capable of intercepting and destroying short range ballistic missiles.

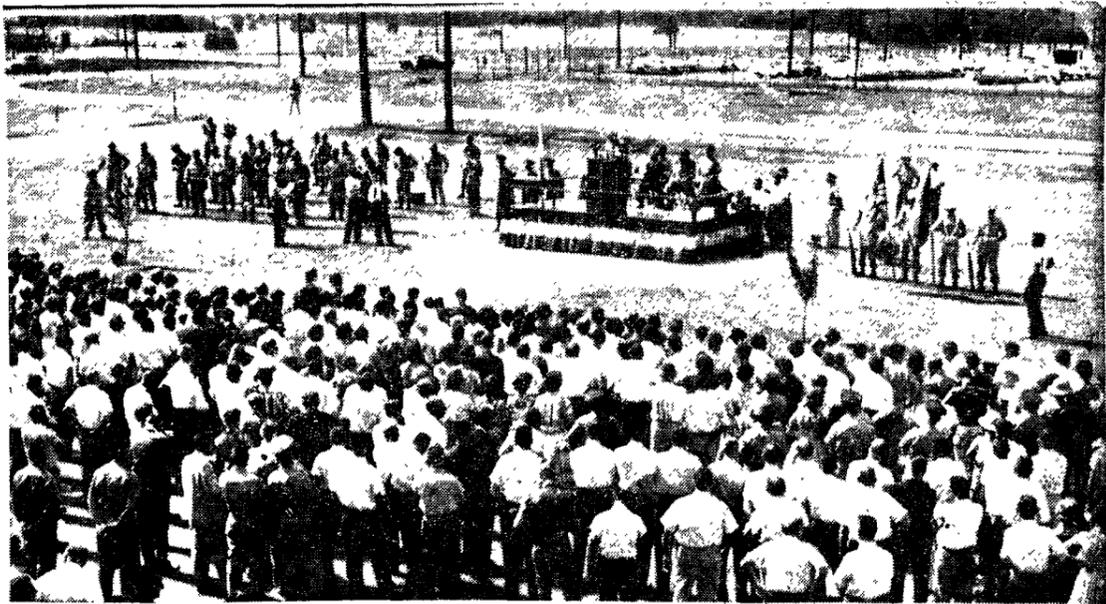
The Zeus system includes very long range radars, nuclear tipped missiles and advanced electronic computers. The system is being designed to protect large population and industrial centers throughout the U. S. against ICBMs and submarine launched IR-BMs.

Zeus radars will detect incoming missiles several hundred miles from their targets. The computers, acting on the radar detection, will automatically launch and guide the defensive Zeus missiles to interception.

Zeus missiles are three-stage, solid propelled vehicles. The first stage with a thrust of 450,000 pounds is the most powerful single grain rocket engine in the Free World. The great thrust gives the missile the necessary speed to cope with ICBM and IR-BM targets moving as fast as 15,000 miles per hour.

Development of the Zeus system has required break-throughs in radar, rocket and computer sciences. The Zeus long-range acquisition radar employs new principles which make it possible for the system to scan the sky for several hundred miles.

The Army Rocket and Guided



**AT TRANSFER CEREMONY**—Personnel of the Army Ordnance Missile Command gathered at the Headquarters, Army Ballistic Missile Agency Friday for ceremonies marking the transfer of the Development Operations Division, to the National Aeronautics and Space Administration's George C. Marshall Space Flight Center. Maj. Gen. August Schomburg, Commanding General of AOMC, turned over about \$100,000,000 in facilities and equipment and some 4,700 civil service personnel to Dr. Wernher von Braun, Chief of the Space Flight Center.

## ARGMA

(Continued from Page 1)

ment. Pending a satisfactory systems demonstration, a contract for production quantities may be let at a later date.

The North American Aviation resigned target missile is unique in that the same missile system is intended to be used for either high or low level controlled missions. For low level use it will not require the use of wings to maintain cruise speed and altitude. Control will be accomplished by all-movable surfaces mounted to the rear of the missile body. For high-altitude supersonic operation a small triangular wing will be quickly attached in the field to provide additional maneuverability.

The craft will be capable of traveling from sub-sonic speeds through Mach 2 - twice the speed of sound - and from ground level to over 50,000 feet.

It is ground launched by a disposable solid propellant booster rocket and powered by a jam jet engine. The booster rocket will be

Missile Agency, an element of the Army Ordnance Missile Command is overall Zeus development manager. Prime contractor is the Western Electric Company. Bell Telephone Laboratories is the system manager. Douglas Aircraft Co., Thiokol and the Grand Central Rocket Company have collaborated in developing the high performance missile.

## ABMA

(Continued from Page 1)

In his remarks, Dr. von Braun said that "without the bountiful and courageous backing and support of the Army . . . the Free World would not have jumped off into space nearly so soon." On behalf of the 4,700 civil service personnel making the transfer, Dr. von Braun said "we are swept by a feeling of gratitude and re-

spect for the magnificent leadership that the United States Army has displayed for years in the conquest of outer space."

More than \$100,000,000 in equipment and facilities were turned over to NASA in transfer.

Advanced engineering carried on for more than a year prior to receipt of this contract award resulted in a target missile which can be produced at a low unit cost and can be re-fired several times through the use of a parachute recovery system.

Small for a missile, the sleek missile will be less than 19 feet long and only a foot in diameter - its triangular wings are slightly more than six feet across and its small, twin all-movable stabilizers have a span of only about three and one half feet. The booster rocket will be located under the body and the ram jet engine on top.

The dual purpose missile concept was initiated at ARGMA. The contract was awarded and will be administered by the Cleveland Ordnance District, Cleveland, Ohio.

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(Continued From Page 1)

perstructure will provide lateral support for the rocket and working platforms for personnel at any point.

All necessary utilities, an electric personnel elevator, and a means for carrying spilled propellants to remote holding ponds will be provided, and a small reinforced concrete control building will be built at the foot of the tower.

The structure will be used to subject the complete Saturn rocket to various mechanical, structural, and operational tests, such as the checkout of the mating features of the several stages and the determination of bending characteristics and temperature and vibration effects. It will also have a capability for other tests involving wind effects, fueling techniques, ground crew training, and assembling methods.

The giant Saturn booster, first stage of the planned multi-stage Saturn space rocket, recently passed its first series of tests with full success.

The Saturn project was initiated by the Army Ballistic Missile Agency of the U. S. Army Ordnance Missile Command; it was transferred to the National Aeronautics and Space Administration on July 1.

(Continued From Page 1)

at that time Dr. Rudolph assumed the position of Director. The transfer of other army missile systems to ABMA will follow within the next three or four months, until his directorate supervises the research and development phase of all systems for which ABMA is responsible.

Intrigued at the outset of his career with the potential of liquid-fueled motors, Dr. Rudolph became an independent inventor and spent much of his time designing and building rockets. He won several patents for liquid-fueled combustion chambers for rockets and aircraft, and demonstrated successfully on the first attempt the operation of a liquid-fueled rocket.

In 1934 he became a member of the staff of Dr. Wernher von Braun. For the next four years he was chief of the Fabrication & Assembly Engineering Laboratories. Starting out at the early Ordnance Proving Ground near Berlin, where he also conducted rocket tests, he participated in the planning of the Peenemuende Rocket Center. At the time of its establishment early in 1937, his operation was transferred there. By the end of 1938 he became Chief Planning Engineer and later Technical Director of Peenemuende South.

At the end of World War II Dr. Rudolph came to the United States with more than 100 other rocket experts in the U. S. Army's "Operation Paperclip." He arrived at White Sands, N. M., in January, 1946, and became the production advisor in the newly-established Ordnance Research and Development Sub-Office for Rockets at Fort Bliss, Texas.

Dr. Rudolph brought his family to Huntsville in 1950 when Redstone Arsenal became the Army Ordnance Corps' center for research and development of rockets and missiles.

At Redstone, and later at ABMA when it was formed in 1956, Dr. Rudolph has held a variety of responsible positions concerning facilities, national procurement and nation-wide engineer-

(Continued From Page 1)

the Deputy Chief of Staff for Logistics, Procurement Division, in the Pentagon, he developed new methods of quality control which were adopted by the Army and later incorporated in Army Regulations. This accomplishment brought him an official Army Commendation.

Col. Fuller reported to his new assignment at Huntsville directly from the Industrial War College of the Armed Forces in Washington, where he completed a 10 months course. He is also a graduate of the Command and General Staff School, the Engineer School at Fort Belvoir, and several special schools in guided missiles.

The Mobile District of the Army Engineers has recently completed modifications to the static test tower at Redstone Arsenal to provide for its use by the National Aeronautics and Space Administration for testing the Saturn booster. Other important construction includes missile development and testing facilities for the Army Ordnance Missile Command.

Col. Fuller will represent the Mobile District Engineer in developing plans for construction for missile support facilities at the important Huntsville, Alabama installations as well as at Eglin Air Force Base, Florida, for the Bomarc missile, and at sever-

ing of missile systems. He also served as Technical Director for the Redstone and Pershing weapon systems.

Dr. Rudolph holds a bachelor degree in mechanical engineering from the College of Berlin. His doctorate was awarded at Rollins College, Florida, on February 22, 1959.

He is married and has one daughter, Marianne, age 22.

(Continued From Page 1)

work on these components will be performed at the Douglas Company located at the Charlotte Ordnance Missile Plant, Charlotte, N.C.

The Honest John is a surface-to-surface missile and was among the Free World's first operational missile systems. It is a long range artillery rocket for tactical use to provide for support in ground combat operations. The free flight rocket is now in the hands of troops in the United States, Europe and the Far East. The program now in progress is to improve its mobility and efficiency.

This contract is being administered by the Birmingham Ordnance District commanded by Col. W. A. Davis.

Honest John was developed un-

al off-shore bases where NIKE-ZEUS facilities are being constructed.

PHILADELPHIA, Penna., July 4, 1776 (ANS) — The Declaration of Independence was signed here today by John Hancock.

der the direction of the Army Rocket and Guided Missile Agency, an element of the Army Ordnance Missile Command.



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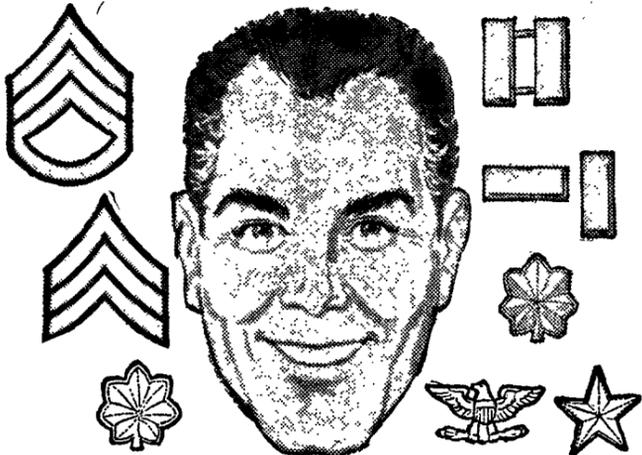
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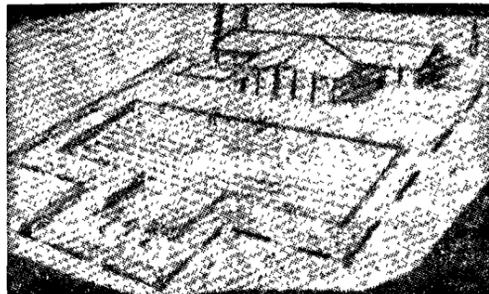
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# Social News

## Miss Sparks Weds Lt. Jennings In Church Ceremony

Lt. Richard W. Jennings was wed to Miss Marcia Jane Sparks at Trinity in the Hill Methodist Church, Augusta, Ga., on June 25. Parents of the bride are Mr. and Mrs. William Donald Sparks of Augusta and the groom's parents are Mr and Mrs. Aaron E. Jennings of Augusta. The bride is a 1960 graduate of the University of Tennessee. Lt. Jennings is a graduate of Georgia Tech where he received his ROTC commission.

He entered the service on May 18, 1959, attended the basic Ordnance Course at Aberdeen, Md., and then the Ordnance Guided Missile School here.

Lt. Jennings joined the Industrial Division, ARGMA on Feb. 1, 1960.

The couple are honeymooning in Florida and will take up residence in Huntsville about July 15.

## Harraway Elected Exchange President

Bob Harraway, electronic scientist, OML Division, ARGMA, was elected president of the Exchange Club of Huntsville last week.

Bill Rotenberry, chief of the Projects Branch, OML, was elected vice president.

The Exchange Club meets each Tuesday at 6:45 p.m. at Steadman's Restaurant.

## Mrs. Shinkle to Be Honored at Lunch By Officers Wives

A farewell luncheon is being held today for Mrs. J. G. Shinkle, wife of Brig. Gen. Shinkle who was recently transferred from command of the Army Rocket and Guided Missile Agency to command the White Sands Missile Range.

The Redstone Arsenal Officers Wives Club is sponsoring the luncheon at the Squirrel Hill Officers Club at 12:30 p.m.

## Engineer Committee Has New Chairman

Louis C. Thompson, Chief of the Flow and Liquid Level Unit, Instrument Development Section of the Test Lab, NASA, has been appointed chairman of the Engineers in Government Service Committee.

Thompson is a charter member of the Northeast Alabama Chapter of the Alabama Society of Professional Engineers.

The Engineers in Government Service Committee is actively engaged in a program of assisting qualified engineers to become Registered Professional Engineers.

## Explorers Hold Father-Son Banquet

Explorer Scout Squadron 234 held a father and son banquet at the Scout Hut recently.

Twelve fathers and sons participated in competitive events fol-

## At the Service Club

**55TH ARMY BAND CONCERT:** The 55th Army Band under direction of CWO-3 Dewitt H. Mytinger presented a concert before

## Graham Is New Commanding Officer Of Naval Reserve

Cdr. John H. Graham, USNR-R succeeds Cdr. Curtis B. Williams as Commanding officer of the Naval Reserve Electronic Battalion 6-3 in Huntsville.

Both members of the Naval Reserve are employed at Redstone Arsenal. Graham recently transferred to the Marshall Space Flight Center from Army Ordnance.

Williams is Chief of the Publications Section, Field Service Division, ARGMA. He is a native of Arab, Ala., and will assume command of the Naval Reserve Unit at Gadsden's NREB-6-2.

Reserve commanding officers are appointed for three years.

## Song Writers Form Writers Guild Here

A new organization called "The United Song Writers Guild" is holding regular meetings in Huntsville.

The meetings are held monthly at 3405 Governors Drive. Entertainment is furnished at each meeting by various artists.

At the last meeting Buddy Hughley and J. R. Brooks entertained. At the next meeting a trio composed of J. R. Brooks, Pat Worley and Connie Rigby will entertain.

To qualify for membership in the organization prospective members must have written two songs

allowing the banquet. The sons won. Hosts for the occasion were the Explorer leader, and the assistant leaders.

a packed house in the Service Club on June 26. The theme of the concert was "Vacation Time," and selections from all over the world were played.

An enthusiastic audience applauded to such numbers as: "Gentry's Triumphal March" by Fred Jewell; "At the Circus" by Heywood S. Jones; "Badinage for Brass" by Harold Walters; "The Golden Tango" by Silvester and Wilson; "Morning, Noon and Night" by F. Van Suppe; "The Typewriter" by Leroy Anderson; "Mexican Overture" by Merle J. Issac; "The Stars and Stripes Forever" by John Philip Sousa; and two movements from Haydn's Symphony Opus 147. Our hats off to the 55th Army Band.

**TOUR TO BIRMINGHAM:** Thirty-two enlisted men participated in a tour to Birmingham on June 25. After seeing the city from atop Red Mountain and snapping lots of pictures, the group went to the YMCA for a picnic supper.

**BIRTHDAY PARTY:** Also on June 26, a Birthday Party with Punch and Cake was held at the Service Club. After the refreshments had been served, the 55th Army Band Concert gave a concert.

**TOURNAMENTS:** The winners of the Pool Tournament on June 23 were: Pvt. Donald Sicks, Hq.

which are acceptable to the audlin committee of the guild.

Interested persons may contact Mr. James C. Curtis, chairman, at Arsenal Ext. 3-3992 or Jess Brooks at JE 6-0521.

& Hq. Co, OGMS, First Place; and Pfc. Charles O'Brien, 226 Ord. Det., Second Place. Congratulations to both!

A Table Tennis Tournament will be held on July 7 at 1900 hours with a prize for the winner.

On July 8 at 1900 hours, there will be a Cribbage Tournament; and on July 12 at 1900 hours, a

An invitation is extended to Canasta Party.

all Enlisted Personnel to come out and join in the tournaments for fun and profit (prizes).

**MONTE CARLO NIGHT:** There will be roulette, poker, and blackjack on July 8 at 2000 hours. Naturally, there will be a prize for the first, second, and third place winners of the largest amount of play money at the end of the evening.

**SOLDIER SHOW:** Talent, ranging from Magicians to singers, dancers and instrumental soloists will be brought under one roof on July 7 at 2030 hours. This promises to be the Show of the Year, so come early to get a good seat.

**TOUR TO CHATTANOOGA:** A tour to Chattanooga has been planned by the Service Club on July 10, to include a visit to Rock City or Chickamauga-Chattanooga National Military Park, ride the Lookout Mountain Incline Railway, and eat a picnic lunch. We will get under way at 1330 hours. Sign up in the office as soon as possible because we can take only one bus on the trip.

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**VISITORS**—Members of the Smyrna (Ga.) Lions Club are shown above in front of a quarter-scale model of the giant Saturn space booster during the group's recent tour of Redstone Arsenal. Development of the Saturn, which has been carried out by AOMC's Army Ballistic Missile Agency, became the responsibility of the National Aeronautics and Space Administration's Marshall Space Flight Center upon activation of the Center at Huntsville July 1. In addition to Army research and development facilities, the Smyrna group also visited the Ordnance Guided Missile School.



**ACT OF MERCY**—Army nurse Loretta Hensley of 15th Field Hospital, Ft. Bragg, N. C., dresses the head injury of a Chilean woman at a temporary hospital site in Puerto Montt, Chile. The unit was flown to the diaster area to aid the Chileans.

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**ARMY AVIATION HISTORY**

On July 2, 1926, the Air Corps Act became law, and the Air Service was redesignated the Air Corps.

On July 3, 1915, Lt. B. Q. Jones became the first American military officer to loop an airplane.

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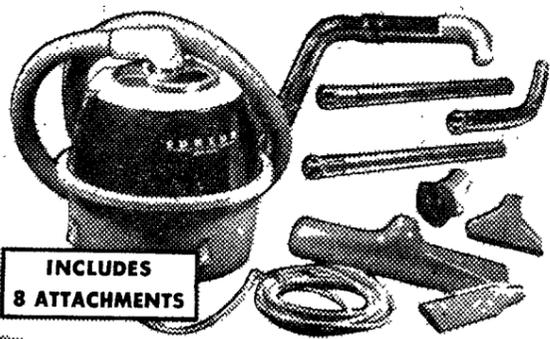
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### Boehm and Hermann Receive Notice of Patent Allowance

The Patent Division of the AOMC Legal Office announced that a patent application entitled "Transmission Device" has been allowed.

The "Transmission Device" is the basic apparatus for transmission of power to missile control surfaces invented by Mr. Joseph Boehm. This device forms the basis for the friction drive patent 2,914,408 issued to Mr. Boehm and Mr. Adolf L. Hermann and reported last week in this newspaper.

Mr. Boehm is a branch chief in the Guidance and Control Laboratory, ABMA and Mr. Hermann is a section chief in the same branch.

The number of the Transmission Device patent will be reported upon issue by the Patent Office.

### Religious Services

POST CHAPEL-BLD 3714.

#### Protestant

SUNDAY-1000 and 1100 hours, general Protestant Services.

Church School-1000 hours-1st session 4th grade thru Adult Class. 1115 hours-2d session 3 yrs of age thru 3rd grade.

Nursery for babies and small children is open during these two services.

1830 hours-Christian Youth Fellowship, Junior Hi and Senior Hi. Busses will pick up those attending.

Tuesday-1830 hours-Enlisted Men's Christian Union.

Wednesday-1900 hours-Chancel Choir Rehearsal.

Thursday - 1530 hours - Junior Chior Rehearsal.

**Redstone Park Community Hall**  
0945 hours - Sunday School Classes.

1100 hours - Morning Worship Service.

Wednesday - 1845 hours - Family Night Services.

#### Jewish Services

Friday - 2000 hours - Temple B'Nai Sholom (Corner of East



**PROMOTED**—Dominick J. DiFrisco, Dental Officer, has bars of a captain pinned on his collar by Col. O. T. McCloskey, Post Commander, during a recent ceremony in which Lt. DiFrisco was promoted to captain.

#### STRENGTH DECREASES

WASHINGTON, (ANS) — Total numerical strength of the Armed Forces on May 31, 1960, based on preliminary reports, was 2,465,500. This represents a decrease of 6,619 from April 30 combined strength of 2,472,119.

Army final audited strength was 868,116. At the end of April it was 870,244.

Selfridge Air Force Base has this sign posted at the gate: "Notice! You are now entering a very dangerous area — The Public Highways. Good Luck!"

Clinton and Lincoln). O'Neg Shabbot (Sabbath Social) at Temple Annex.

#### Catholic

Sunday - Masses 0730, 0845, 1230 and 1700 hours (Nursery available during masses).

Baptisms - 1330 hours (or by appointment).

Monday - Inquiry Class - 2000 hours.

Tuesday - Altar Boys' Class - 1830 hours.

Novena in Honor of Miraculous Medal - 1930 hours.

Choir Rehearsal - 2000 hours.

Saturday - Confession - 1800 - 1900 hours.

Daily Mass - 1115 hours.

#### Christian Science Services

Sunday - 1100 hours - Held in Huntsville at White St. and Wells Avenue.

Wednesday - meeting - 1930 hours.

### Army Surgeon Says Today's Doctors Might Save Lincoln

When the present incumbent of the nation's highest office was stricken with a heart attack in 1957 the whole world hung on reports of his condition. President Eisenhower, receiving the best medical treatment of our time, fortunately recovered.

When on the night of Apr. 14, 1865, John Wilkes Booth sent a bullet into Abraham Lincoln's head, another crisis of the U. S. Presidency had people the world over aghast.

"Lincoln's doctors gave Lincoln the best medical care possible at the time," says Lt. Col. George L.

Hayes, chief of neurosurgery at Walter Reed Hospital.

But he believes that today brain surgeons quite possibly could save the President's life. Lincoln died nine hours after he was shot.

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1955 Dodge, 2 dr. H. T. ....	<b>\$52.26 Per Mo.</b>
1954 Ford 4 dr. ....	<b>\$34.84 Per Mo.</b>
1954 Ford 2 dr. ....	<b>\$38.84 Per Mo.</b>
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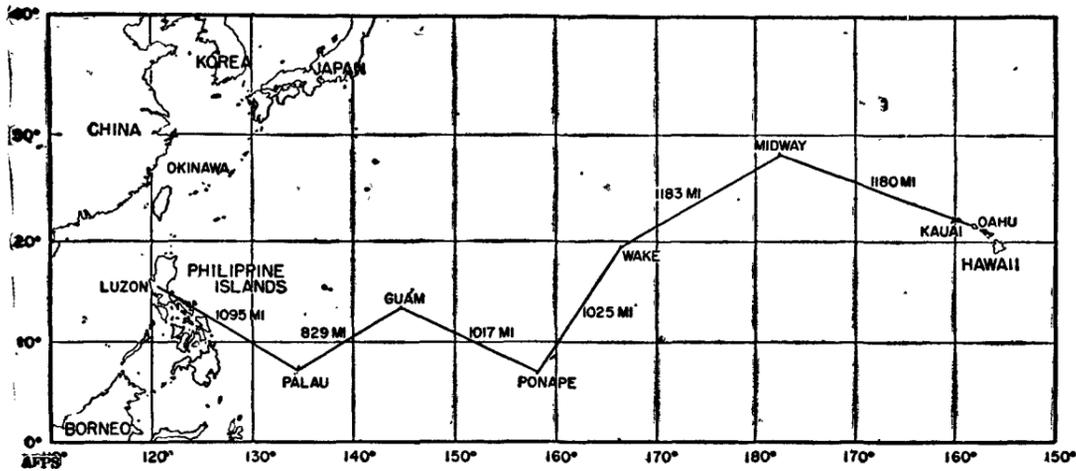
Members may borrow from \$50 to \$5,000 for provident purposes. Signature loans may be granted up to \$750—while you wait—dependent upon salary, service, and credit conditions.

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**87th DIV. REUNION**  
NEW YORK, N.Y. (ANS) — The

starring Vincent Price and Judith Evelyn. Time 1800 and 2030 hours.

Tuesday, July 12, "Courthouse Caboose" starring Ben Cooper and Molly Bee. Time 1800 and 2030 hours.

87th Division Association will hold its 1960 reunion at the Henry Hudson Hotel here August 26-28.

Further information can be obtained from Mr. William M. Churchill, National Commander, 87th Division Association, 141 Livingston Street, Brooklyn 1, N.Y.

**Movie Schedule**

Wednesday, July 6, "Career" starring Dean Martin and Anthony Franciosa. Time 1800 and 2030 hours.

Thursday and Friday, July 7-8, "The Mountain Road" starring James Stewart and Henry Morgan. Time 1800 and 2030 hours.

Saturday, July 9, SPECIAL

MATINEE, "Johnny Rocco" starring Stephen McNally and Colleen Gray. Time 1000 hours.

Saturday, July 9, "The Spanish Gardener," starring Dick Bogarde and Jon Whiteley. Time 1800 and

2030 hours.

Sunday, July 10, "Kidnapped" starring Peter Finch and James MacArthur. Time 1400, 1800 and 2030 hours.

Monday, July 11, "The Tingler"

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# SPORTS

## Wives Golf Group Participates in Hillcrest Tournament

Nine members of the Officers Wives Club Golf Group and three of their daughters competed in the invitational golf tournament at the Hillcrest Country Club in Pulaski, Tenn., last Wednesday.

Miss Carol Lehtonen, 14-year-old daughter of Col. and Mrs. R. O. Lehtonen, won the sixth flight. Mrs. C. J. Payne was the first flight winner, and Mrs. H. H. Wishart was runner-up in the second flight.

The other teenagers who competed were Miss Betty Payne and Miss Holmes.

Eighty-eight competed in the tournament.

Today the Golf Group is holding a Scotch foursome, at the Arsonal Golf Course.

The Ginna Medaris tournament, in which competitors play against the course, is now running.

### SOFTBALL SCOREBOARD

Det A, ARGMA 9 — Hq Co. School Troops 0.  
Hq Det USAG 13 — Co. A, OGMS 12.  
1st ETC 8 — Medical Det 7.  
Hq Det USAG 19 — Signal Det 6.  
UTC 8 — 3rd ETC 7.  
3rd ETC 26 — Hq Co. School Troops 13.

### BASEBALL SCOREBOARD

Hq Det USAG 12 — Det B, ABMA 3.  
School Troops, OGMS 2 — Det B, ABMA 0.

### SOFTBALL STANDINGS

American League		
Team	W	L
Hq Det USAG	14	2
1st ETC	12	2
Co. A, OGMS	10	6
AOMC Officers	4	11
Medical Det	3	12
Signal Det	2	12
National League		
Team	W	L
NCO Club	11	3
UTC	8	5
Det A, ARGMA	9	7
Det B, ABMA	7	7
Hq Co. School Trps	7	9
3rd ETC	2	13

### BASEBALL STANDINGS

Team	W	L
Hq Det USAG	7	0
School Troops, OGMS	5	2
UTC	1	4
Det B, ABMA	0	7

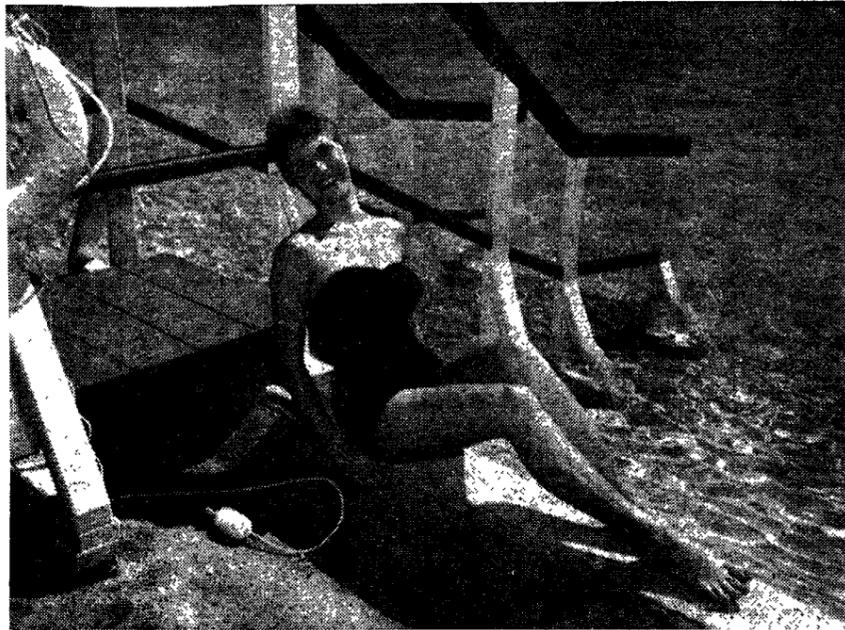
## Little Misses Will Compete in Contest At Guntersville Lake

The Little Miss Guntersville Lake Contest will be held at Guntersville, at 6 p.m. Friday night, July 15, at the football stadium.

Little girls, 3 - 6 pre-school age, are eligible to enter. An entrance fee of \$2.50 will be required.

Parents wishing to enter their child in the contest are asked to contact: Mrs. A. L. Dodd, Contest Chairman, Box 108, Guntersville, JU 2-4472; Mrs. Richard Starnes, Guntersville, JU 2-3101; Mrs. James Harton, JU 2-2411; or Mrs. Fulmer Webb, JU 2-4353.

The contestants must wear ei-



ON A LAZY SUMMER DAY Miss Shirley Grinstaff, this week's Rocket pinup, relaxes beside the refreshing waters of a pool. Shirley, a 21-year-old blonde from Elizabethton, Tenn., is employed at the ARGMA Control Office as a secretary. She has also worked as a teletype operator.

## ARGMA HAS CONTRACTS WITH MICHIGAN FIRMS

The Army Rocket and Guided Missile Agency has active contracts with nine contractors in Michigan.

The Michigan contractors include:

### Detroit

Continental Aviation & Engineering Co., supporting research on rockets, \$314,068.

Wayne State University, research on vibration and ablation, \$9,613.75.

Michigan Tectronics, Inc., cable assembly and spare parts for the NIKE and CORPORAL missile systems, \$48,601.70.

Fruehauf Trailer Co., trailers,

\$1,644,329.80.

Brooks & Perkins, electrical equipment cabinets, NIKE system, \$296,683.20.

### Bay City

Dow Chemical Co., receiver transmitter housings, \$97,128; modulator housing, \$67,740 and electrical equipment cabinets, \$234,908, for the NIKE system.

### Grand Rapids

Jarecki Corp., SERGEANT missile guidance component, \$21,559.93.

### Jackson

Aeroquip Corp., hose assembly for NIKE and CORPORAL, \$29,313.62.

### Kalamazoo

Ingersoll Kalamazoo Division, Borg-Warner Corp., rocket motor parts, \$868,239.96.



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ther a bathing sui or a sunsuit. This year the Little Miss Guntersville Lake Contest is sponsored by the Cosmopolitan Club. The Jaycees, as in the past, will present the winners with the loving cups.



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## Laboratories Were Built for ABMA Missile Programs

The physical facilities which were transferred from the Army to the National Aeronautics and Space Administration July 1, were originally installed for the Army Ballistic Missile Agency. They are valued at about \$100,000,000.

The Agency was activated Feb. 1, 1956 to develop the Jupiter Intermediate Range Ballistic Missile System and to complete the development and weaponization of the Redstone Ballistic Missile System.

The transfer involves facilities occupied by the Development Op-

erations Division of ABMA. The Division operates 10 laboratories. These will become Divisions of the Marshall Space Flight Center, which are described in the following paragraphs:

**Computation Laboratory:** gross area, 58,465 square feet.

The Laboratory houses electronic computing equipment used for the automatic processing of data obtained from tests, missile firings and research. It is manned by programming and administrative personnel who carry out data reduction. In addition to employing high speed digital computation, simulation and data reduction in the fields of missile and space vehicle research, the Laboratory will continue to perform business-type automatic data processing services for ABMA and other elements of the Missile Command.

**Aeroballistics Laboratory:** gross area, 38,860 square feet.

The Laboratory is equipped to conduct research and development in the field of aeroballistics and related sciences to establish optimum design for ballistic missiles, satellites and other projects. It also makes analyses of future projects and supporting research activities.

Its facilities include two wind tunnels to obtain and evaluate experimental data required to optimize the configuration of rocket systems and to conduct research in aerodynamic measuring techniques. There are vacuum tank

facilities, vacuum pump house, air dryer house, compressed air facility and dry air storage tanks.

**Fabrication and Assembly Engineering Laboratory:** gross area, 348,411 square feet.

The Laboratory is equipped to produce experimental model and prototype ballistic missiles and space vehicles. It also conducts research in and develops new technology and novel manufacturing methods and procedures, including tooling and equipment for fabrication and assembly. It has supplied scientific and engineering advice to industrial contractors performing system or component development and production.

Its facilities include the following:

**Preservation Facility** — housing a spray system to apply preservative coatings and materials to missiles.

**Press Forming and Heat Treating Shop** — houses hydraulic presses and furnaces to form and heat treat metals and missile components.

**Missile Assembly Shops 1 and 2** — fitted with special tooling for component and missile sub-assembly and modification, final assembly, alignment, wiring buildup and installation, fuel and hydraulic line and valve makeup, testing a cleaning involving ultrasonic equipment.

**Structural Fabrication Building** — utilized for ballistic shell fabrication, hydrostatic test, X-ray of welds.

**Development Shop** — equipped for machining, spinning, stretch forming, skin milling and related machine shop operations involved in missile development and production and including the manufacture of special tooling.

**Engineering Building** — utilized for engineering and management operations.

**Surface Treatment Facility** — utilized for surface treatment of metals including cleaning, passivating, anodizing, plating, chem-

ical milling and painting.

**Facilities Maintenance and Supply Building** — utilized for model work, mechanical maintenance and alteration of special tooling and production equipment; receiving, warehousing and distribution of materials and supplies.

**Methods Research and Development Building** — utilized for the conduct of methods research and development applied to fabrication and assembly of missiles.

**Instrumentation Shop** — utilized for buildup, modification and maintenance of electrical control consoles and panels controlling special welding equipment and intricate wiring systems on production equipment.

**Guidance and Control Laboratory:** gross area, 306,475 square feet.

The Laboratory performs research, development, engineering and pilot manufacture of guid-

ance, control, electrical network, missile tracking, measuring, telemetering and range safety systems. It tests commercial components and fabricates and modifies electrical and electronic on-missile components, ground equipment and laboratory equipment.

Its facilities include the following:

**Laboratory Building** — used for telemetry and measuring research development and testing.

**Guidance and Control Laboratory** (Continued on Page 10)



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## Facilities Given

(Continued From Page 9)

tory — houses staff offices, gyro-stabilizer and navigation branches, environmental testing, radio frequency, measuring and telemetering activities, applied research, electro-mechanical engineering, mechanical shop and pilot manufacturing areas.

Wiring Laboratory — performing the buildup of electrical networks.

Guidance and control Shop —

pilot manufacture in sheet metal, welding, coil winding and machine shops.

Methods Development Building — a complete laboratory for development and testing of guidance and control components.

Materials Engineering Building — nuclear gas testing of transistors and printed cabling laboratory.

Gyro Shop — used for beryllium machine shop and printed circuit laboratories for pilot manufacture.

Systems Support Equipment Laboratory: gross area, 138,195 square feet.

The Laboratory plans and develops missile support systems to meet tactical and logistical requirements for missiles or space projects. Its facilities include:

Fuel Test Stand — houses instrumentation for tests such as propellant transfer.

Mechanical Building — houses engineering personnel and the "shake table" device by which missile packaging methods and materials are evaluated.

Supply Building — houses operating supplies for the Laboratory.

Missile System Building — houses electrical and mechanical branches which mate, test and evaluate electrical, hydraulic and pneumatic circuitry and missile components.

Engineering and Machine Shop — Furnishes electrical, electronic and mechanical designs; conducts checkouts, tests and modifications for ground support equipment. Utilizes a machine shop, sheet metal shop, welding shop, electrical shop, hydropneumatic and high pressure checkout equipment.

Vehicle Shop — utilized for vehicle modification and the fabrication and modification of handling equipment.

Systems Analysis and Reliability Laboratory: gross area, 107,185 square feet. also maintains repre-

sentatives and functions in the buildings of other laboratories for the purpose of quality control and inspection. The Laboratory facilities include:

High Pressure Test Laboratory — performs functional test of rocket engines, systems and components and analyzes data for the purpose of accepting or rejecting items.

Missile Inspection and Assembly Hangar — utilized for development, supervision, maintenance and evaluation of programs and procedures in the fields of system analysis, reliability, quality engineering and quality control.

Structures and Mechanics Laboratory: gross area 249,734 square feet.

The Laboratory conducts research and development in the fields of structures, mechanics, propulsion, chemistry and materials related to ballistic missiles, space missiles and vehicles.

Its facilities include:

Shop — used by layout section for missile systems.

Testing, Mockup and Engineering Building — utilized for preliminary layouts of missile systems, evaluation of data pertaining to mass characteristics of missiles or components, and analytical and physical checks of missiles.

LOX Test Pits — utilized for preparation of electrical and mechanical components and sub-assemblies for test and storage.

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Test Tower Instrumentation — used for instrumentation for a 15-foot centrifuge employed in performing acceleration tests on missile components.

Engineering and Administration Building — houses the technical and scientific staff which conducts research and development.

Engineering Materials Building — utilized for research and de-

velopment in chemistry and materials for planning, design, manufacture, storage and operation of missiles and space vehicles.

Development Shop — processes design engineering from the preliminary design to completion of test models.

S&M Experimental Shop — (Continued on Page 14)

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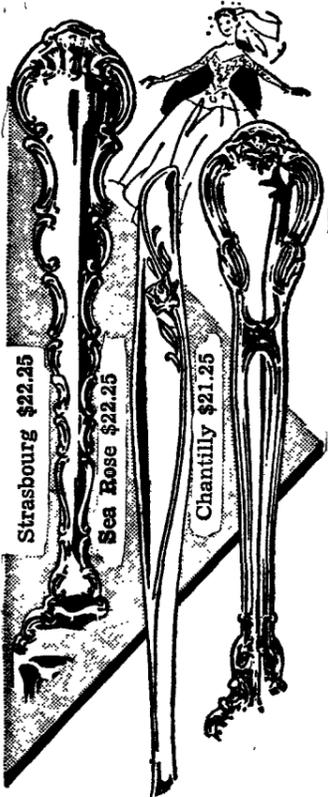
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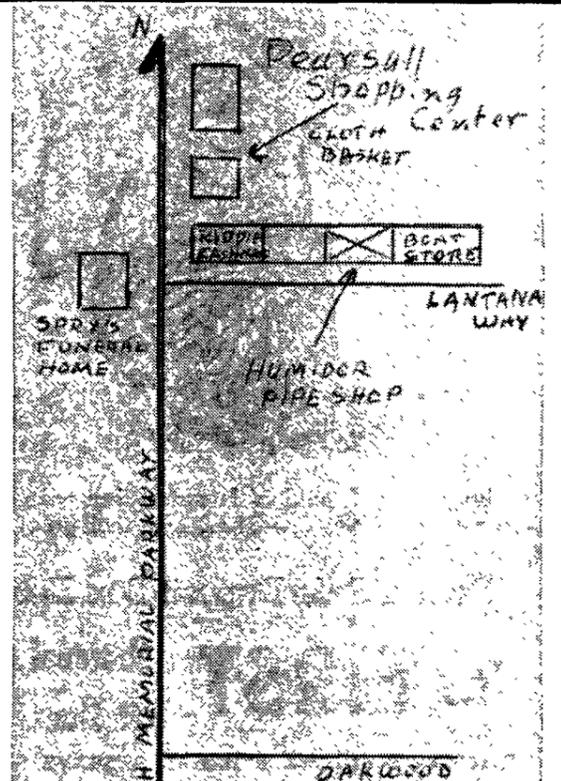
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**MECHANIZED DOCUMENTATION** — Electronic accounting machines speed up the process of ARGMA's documentation as such men as (left to right) Herbert Ward, project planner, Bill Silvey, machine operator, James Wilkes, project planner, and Bob Farrell, machine operator feed the machines problems which are automatically punched on EAM cards.



**FILM MOUNTER**—Louise Hyde, card mounter operator, feeds an aperture card into the semi-automatic film mounter in the ARGMA Documentation Engineering Center. The cards may be punched with a complete record or portions of an engineering record. The related film is for use in a 35 mm. projector.

## Mechanized Documentation Results in Speedy Service

BY D. W. RYALLS

(Second of Two Parts)

Service Is Faster

ARGMA's Mechanized Data Processing System for Engineering Documentation has resulted in faster service, reduction in cost for reproduction, reduced floor space, reduction in personnel, reduction in shipping cost and for the first time in history gave the using agencies a product that was in sequence ready for use upon receipt.

The first microfilmed engineering drawing of ARGMA's Mechanized Data Processing System was mounted into an EAM aperture card October 9, 1957. Since that date approximately 7,000,000 microfilmed documents have been completely processed into EAM aperture cards and are working files on the arsenal or have been furnished the using agencies. The above figure represents approximately 850,000 engineering drawings and related documents.

During the year 1958, as more missile and rocket systems came into being, it was foreseen that another problem was arising whereas the volume of drawings forwarded to ARGMA by the many contractors was increasing by leaps and bounds. The micro-filing system at ARGMA had to be expanded or other arrangements made.

A space freeze was on, therefore personnel were not available. Other means had to be resolved in order to meet the demands and requirements for Engineering Documentation.

### Consultations

Consultations were held among documentation personnel and studies were made with the missile prime contractors. Finalization of these studies resulted in having the engineering documentation

drawings at the contractor plants. ARGMA would microfilm all engineering drawings and related data originating at this agency.

Procedures were written and scopes of work were entered in all contracts placing the requirement on the contractors to furnish ARGMA microfilmed documentation. The negotiating with all prime contractors has been completed and agreements reached. All contractors are either furnishing ARGMA microfilmed engineering drawings and related documents or are set up to furnish ARGMA these documents in microfilmed EAM aperture card form. This has completely eased the pressure on ARGMA's camera operation and will save thousands of dollars in shipping cost alone plus handling cost and time saved. As another time saver ARGMA is having the contractors ship microfilmed documentation directly to the agencies on distribution. At the present time 15 users are on distribution for this documentation plus an off arsenal security repository.

### Can Switch

ARGMA, in addition to the EAM microfilm card, has formulated and put into the mechanized system other EAM punch card projects that tie in with and control the engineering drawing operation. These projects were so designed where they could be switched over from a basic machine operation to a high speed computer operation with minimum programming for maintaining accurate and up-to-date engineering records.

One of the most outstanding EAM punch card projects is the Generation Breakdown. This system was devised by ARGMA's Documentation Center Personnel, tested and proven to meet the re-

quirements of the required related data for engineering drawings. This card deck is rather simple in design and is furnished by the contractors along with the engineering drawing microfilm card.

All objectives can be prepared as separate listings or reports, or, all objectives can be listed or reported on one document.

### MASTER INDEX

Another outstanding EAM punch card project designed, formulated and prepared by ARGMA's Packaging Data and Documentation personnel is the Master Index of ARGMA Packaging Data. This index is prepared and published in both Ordnance Part Number Sequence and Federal Stock Number Sequence in EAM punch card decks and in bound book form.

It contains the item name, packaging specifications, cleaning method, drying method, preservation type, protective method, unit, intermediate and exterior quantity, weight, and cube plus the Ordnance Part Number and Federal Stock Number.

By the development of approximately 50 Packaging Data Standards, this index replaced the requirement for individual Packaging Data Sheets for approximately 75% of the repair part items at a savings of thousands of dollars

per year.

### GROWTH CONTINUES

Due to the continuing growth microfilmed from the original Galley 2 Mechanized documentation of the missile system and emphasis placed in the documentation area, no system for handling and recording documentation can remain stable.

To further speed up the Engineering Documentation program at ARGMA it is felt by the Documentation Center personnel that additional links have to be added to the Mechanized Data Processing System chain. Feasibility studies are currently being conducted on the following:

An Automatic Random Access Selecting Machine that will automatically search out a million film image volume and select the desired document in a matter of seconds.

### PILOT INSTALLATIONS

ARGMA, as a pilot installation for Ordnance, was selected by OCO because of the volume and the fast rate of progress made in the research and development stage, as the agency to be used as a feasibility study for an automatic selecting device. This study has been completed by one of the famous machine builders and ARGMA is expecting the report from this company momentarily.

Closed circuit television that will transmit images of engineering drawings. It is anticipated that with the use of closed circuit tele-

vision from the master reproduction files to Field Service Division and segments of Industrial Division, that requirements for the reference print files in Field Service Division and Industrial Division will be eliminated at a reduction in cost of approximately \$6,000 per month.

The Mechanized Data Processing System at ARGMA is one of the most modern and up-to-date systems of its kind in Ordnance and as a result of progress made in research, design and development this system is being integrated into many of the installations throughout the Ordnance Corps.



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# Documents Accumulate, Missile Program Grows

## It Also Takes Many Technical Writers

According to Lt. Col. Frank E. Napper, Chief, Field Service Division, ARGMA, a single guided missile system may require tens of thousands of pages of maintenance, operation, and repair parts publications. The Maintenance Branch, Field Service Division, has the responsibility of documenting most of the Army Ordnance Corp's missile and rocket systems.

To perform this task, the Maintenance Branch Publications Section, headed by Curtis Williams, employs 288 technical writers, editors, illustrators, supply catalogers, and supporting personnel.

In FY 1959, the Publications Section either prepared or supervised contractor development of over 900 publications containing over 45,000 pages. This figure will climb to 77,000 in FY 1960 and is expected to reach 95,000 pages in FY 1961.

This missile and rocket documentation comes in many forms: descriptive, operating, and functional type technical manuals for use in the classroom and in the field to train personnel in the operation and understanding of the equipment; maintenance manuals to train technicians to maintain the equipment in the field; and supply manuals so that repair parts can be identified and ordered.

In the repair parts area, some missile systems are comprised of thousands of intricate components which must be accurately catalog-

ed, a job that might stagger even Sears and Roebuck but which the Publications Sections now accepts as matter-of-fact. The Nike-Hercules missile system, for example, required 67 separate supply manuals and 115 separate technical manuals.

Concise publications coverage must be made available to using organizations concurrently with delivery of a missile or rocket system. In addition, changes and improvements are constantly being made to missile systems. Such changes require immediate reaction from the Publications Section to make this new information available to using organizations - a task which necessitates "hair-line" schedules and deadlines.

Every year the Publications Section personnel log hundreds-of-thousands of miles traveling to every part of the nation, tracking down source material for these publications. In addition, where the documentation is contracted out, Publications Section personnel may spend many months at contractor installations supervising and assisting contractor personnel.

Publications Section writers must thoroughly understand military specifications, electronics principles and circuitry, editing procedures, reproduction processes, art illustration techniques, funding and contracting, and must possess diplomacy and managerial ability.

These writers come from all parts of the country; many are former newspaper men, magazine writers, veteran technical writers,



FORTY-SEVEN TECHNICAL MANUALS, representing a portion of the eighty-eight HAWK Air Defense Guided Missile System publications, stack higher than the Publication Section's tallest employee, George Rudd, who stands 6 ft. and 6 in. tall.

and journalism students. For example, Edgar Gollop, Publications Officer, who heads the Hawk Publications Subunit, is a graduate of the University of Minnesota's school of journalism and was a former project manager for technical manuals for the National Security Agency in Washington, D.C. In addition he was Editor of Engineers' Design Review. Another Publications Writer, Marshall Keith, is a graduate of the University of Alabama, and has done graduate English work at Columbia University in New York. Keith, before coming to ARGMA, was display editor for an internationally distributed publication. Some of the writers come in as trainees and are subjected to an extensive six months curriculum which includes clear writing courses, study of military documentation specifications, special courses, study of military docu-



A FEW DISAGREE BUT THE BIG MAJORITY CAN SEE THE NEED FOR WISE AUTHORITY.

mentation specifications, special courses on missiles and rockets, electronic courses, and actual writing of various military publications for final tests. And as any publication is best evaluated by its circulation, the Publications Section has a guaranteed circulation which would be the envy of any publisher. Its publications are distributed to a wide audience located around the world.

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**BOUND FOR CAPE** — Twenty-eight leading citizens of Huntsville left from the Huntsville Municipal Airport this afternoon for Cape Canaveral, Fla., for a tour of the installation as guests of the Citizens Advisory Committee of Redstone Arsenal. The group will return Thursday afternoon.

**ABRAHAM LINCOLN SAID:**  
Let reverence for the laws become the political religion of the nation." Celebrate Law Day US, the first of May, by this pledge: "I will respect and obey the laws."

## SPORTS QUIZ

What do the following baseball terms mean?

1. A draw game.
2. A run down.
3. Squeeze play.
4. Pivot foot.
5. Force play.

(Answers to Quiz)

1. A legal game that ends with the score tied.
2. Act of the defensive team to put out a runner between bases.
3. When a team with a runner on third base attempts to score that runner by means of a bunt.

4. The pitcher's foot which is in contact with the pitcher's plate as he delivers the ball.

5. When a runner legally loses his right to occupy a base by reason of the batter becoming a runner.

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## Facilities Given

(Continued From Page 10)

ducts research, development and performance testing of hydraulic components, valves and other missile components; performs environmental testing and structural testing of complete missile structures, satellites and other space vehicles.

Vacuum and Compressor Building — houses air conditioning equipment and high pressure testing and air control equipment.

Accelerator and Test Cell Building — employed for hazardous testing of components and materials. It is equipped with a large rotary accelerator for high G loading.

Test Laboratory: gross area, 187,614 square feet.

The Laboratory performs experimental and developmental testing of complete missile systems and their components, providing an independent evaluation of test results and recommendations on

design criteria.

The Laboratory includes the following facilities:

Nitrogen plant — utilized to compress helium and put it in transfer or storage containers.

Shop — support facility for high pressure gases and propellants.

Power plant test stand — for static firing rocket engines and missiles up to 300,000 pounds thrust.

Engineering Building — houses test operating and data reduction personnel.

Blockhouse — instrumentation and control center for static test tower and horizontal firing test stand.

Static Test Tower — used for static firing completed guided missiles and space vehicles. The tower has two positions, one capable of handling 500,000 pounds thrust; the other, 2,000,000 pounds thrust for Saturn class rockets.

Components Test Laboratory — equipped for research and development testing of guided missile components.

Cold Calibration Test Stand — a two-position cold flow test stand.

Guided Missile Test Shop — complete welding, machine, structural assembly, sheet metal, pipe fitting and instrument development shop for support of test stand operations.

Interim Test Stand — a two-position stand for static firing of guided missiles up to 100,000 pounds thrust.

Signal Unit and Instrumentation Building — houses television operations and photography units employed in test programs.

Liquid Propellant Test Stand — assembles test apparatus for conducting combustion tests on rocket motors and gas generators.

High Altitude Test — a large high altitude duct facility simulating conditions up to 100,000 feet altitude.

Checkout Building — engine assembly shop.

Research Projects Laboratory: gross area, 7,000 square feet.

This laboratory originates and directs advanced research projects

which, for the most part, are accomplished by private industries and educational institutions. Major areas of work are in advanced materials and propulsion and the physics of reentry.

Missile Firing Laboratory: gross area, about 135,000 square feet.

The Laboratory has management offices and a components warehouse at Redstone Arsenal. The major facilities, however, are at the Cape Canaveral, Fla., firing site. Among Cape facilities are the following:

Two Hangars — these buildings, 38,000 square feet in area, are used for horizontal checkout of missiles before erection on launch pad, engineering offices, and labs, telemetry recording and maintenance operations, several machine shops and a communica-

tion center.

Supply Building — houses all missile components and other supplies.

Engineering and Laboratory Building — houses such functions as guidance and control, electronics engineering, measuring and tracking, and management offices for the Army and associated contractors.

Vertical Launch Facilities — the Laboratory operates two vertical launch facilities, each with a blockhouse service structure, and two launching pads. The Army will retain at Cape Canaveral one of the vertical launch facilities the Pershing Ballistic Missile launch facility, one hangar and office space.

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In All Sections Of City.

## RELIABLE Realty Co.

REAL ESTATE — INSURANCE  
1002 Meridian St. N. Phone JE 6-9648  
Skyline Acres, JE 9-5111 — Nights: JE 4-7914, JE 9-3373

## FOR QUALITY AND PRICE

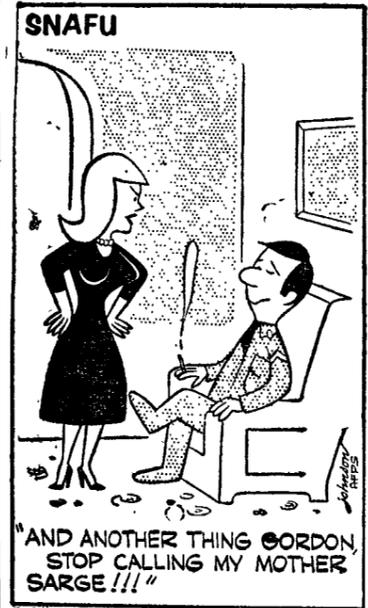
Buy in Convenient  
**REDSTONE SUBDIVISION**  
FHA \$650 DOWN — G. I. \$200 DOWN  
(Closing Costs Included)  
3 BEDROOM BRICKS — CITY SEWER — CARPORTS  
PAVED DRIVEWAYS — OAK FLOORS (No Slabs)  
From \$13,000

DIRECTIONS: 3 blocks east of Jordan Lane on Bob Wallace—Look for our signs.

Monthly Payments As Low As \$83.10 (Tax & Ins. Incl.)

## GEORGE GESMAN & CO.

307-08 Terry-Hutchens Bldg. Phone JE 6-1412



**ARDMORE ESTATES**  
OPEN DAILY 2-7 P.M.  
or by appointment anytime.  
**3 Bedroom Bricks**  
7 Available for Immediate Possession.  
with 1½ ceramic tile baths  
**100% GI Loans**  
Priced from \$13,500 to \$15,600  
Convenient to downtown, Arsenal, Schools, Churches, and Shopping Center.  
Other Listings and Low Equities Available  
**GENE BLOCKER**  
Realty & Insurance  
3405 Governors Dr., JE 6-6331  
Across From Martin Stove

**ALL 100% VA**  
**CANTERBURY SUBDIVISION**  
\$12,600 to \$13,000  
Only \$200. closing cost is all you need pay to own one of these 3 bedroom homes in best location. FHA financing \$400. down.

**PEARSALL GARDENS**  
\$13,175 to \$13,575  
Three bedroom brick homes with many top features. Payments cheaper than rent. Phone to see these homes today.

**WESTWOOD ESTATES**  
\$14,200 to \$15,500  
Several different models to choose from and all on large lots. Some have 3 bedroom and den. Will sell on FHA low down payment.  
Drive north on Pulaski Pike to Mastin Lake Road, turn left and look for our signs on right.

**NOLAN HILLS**  
\$16,500 to \$16,700  
Beautiful bricked 3 bedroom and den homes with 2 full ceramic baths. Located in lovely, quiet, country-like area. Use your VA loan here or buy on minimum down FHA.

**GROVEVIEW ACRES**  
\$15,800 to \$17,900  
Full grown pecan trees on each large lot. All three bedroom brick homes have plenty of spacious living area. Buyers are selecting these fast, so choose yours now. Drive north on Pulaski Pike past Embry's Store, look for our sign on left.

**HUNTER & MITCHELL REALTORS**  
2006 Memorial Parkway No. Phone JE 9-1759

**Meadow Hills**  
"THE MOST HOUSE FOR YOUR MONEY"

Featured in **Newsweek** — As One of The Best Home Values In America!

**OVER 15,000 Satisfied Residents In The South!**

THREE BEDROOM FOLMAR & FLINN HOMES

**GI's MOVE IN FOR ONLY \$100 CLOSING COST**

**3 Completely Furnished MODEL HOMES OPEN For Your Inspection**  
**FHA MOVE IN FOR ONLY \$400 DOWN PAYMENT — PLUS — \$100 CLOSING COST**

**PRICE RANGE \$12,100 - \$13,350**

COMPARE THESE FEATURES:

- All 3 Bedrooms
- Paved Driveways
- Carports—Outside Storage Area
- Washer Connections
- City Sewerage
- Paved Streets
- Double Closets
- Factory Finished Cabinets

**Monthly Payments as Low as \$80.00 IMMEDIATE OCCUPANCY!**  
Completely furnished model homes open 7 days a week until 9 P. M.  
**Folmar & Flinn Sales — JE 6-2301**

**Meadow Hills**

# Use Wantads

WANT AD RATES — \$1.50 minimum, per weekly insertion, covering first 25 words. 4 cents per word for all over 25 words. Cash with copy, except where open account basis is previously established. Mail copy with payment to Mrs. Zillah Newsome, P. O. Box 346, Huntsville. Deadline is Monday, 9 a. m. for the week's edition.

**FLEMING MEADOWS EQUITY SALE!** — 3 bedroom brick at 304 Bellingrath Drive, paneled den, 2 ceramic tile baths, attached garage, large patio, barbecue grill, beautifully landscaped corner lot, only 3 blocks from Whitesburg Drive, 1/2-mile from new Catholic school, 1495 sq. ft., FHA loan. Call Redstone ext. 3-3002 or JE 4-2205. 1tc

**AIR CONDITIONER FOR SALE:** Westinghouse 11,500 BTU, 220 volt. Used less than one season. New condition, \$175.00. Ext. 3-4642 or JE 9-5975 evenings. 7-13p

**FOR SALE — 2 bedroom, 46'x8' 1957 Pacemaker Trailer,** small equity, assume payments of \$62.00 per month. Phone Thiokol Extension 6-6191. 7-13p

**FOR SALE OR RENT — 1955 House Trailer, A-1 condition,** 2 bedrooms, air conditioned, automatic washer, etc., located one mile northeast of Huntsville, Phone JE 6-0088. 1tc

**FOR RENT — available July 15—** brick duplex, ceramic tile bath, nice residential section, 1020 Bierne Ave., No small children, phone JE 5-1451. 7-13-c

**COOL, FURNISHED, 1st floor bedroom apartment,** living room, kitchen-dinette, private bath, porch and entrance, best neighborhood, close-in, janitor, \$75.00 phone 534-8467. 1tp

**WHY PAY RENT? Live in a modern duplex home while your neighbor pays all expenses.** Call NOW . . . 534-2652. 1tc

**FOR SALE — 1958 Anderson house trailer, 10' wide, spacious 45', \$500 plus payments.** This is a fine quality trailer with all conveniences, including good insulation, Carpeting, air conditioning, washer, heated floor, call Redstone Ext. 3-1965. ttc

**FOR SALE—Brick home in Montdale, 3 bedrooms, 2 baths, separate dining room.** Attached garage. Close to Blossom wood School. Equity \$3,500. Payments \$109.00. Phne 534-2313. 1tp

**FOR SALE — 1950 Ford, excellent motor and mechanical condition, \$200.00, phone JE 9-1572.** 1tc

**FOR SALE — 1950 House Trailer, exceptionally clean inside reasonably priced inew stove, Bed-couch, tile floor. Ideal for lake lot.** Call 3-6526. Mr. Bogue. 1tp

**EQUITY SALE — 3 bedroom house, near bus, schools. Fifteen minutes to Redstone.** Includes fence, clothes dryer, dishwasher, antenna, 4 1/2% GI, low payments. 2609 Waltham Drive NE, phone 534-8468. 1tp

**FOR SALE — 5 room house, city sewer, near Crestline School in Hartselle, Ala. \$895 Equity and take up First Federal Payments.** See J. T. Luker at Lukers Barber Shop, 2901 Governors Dr. or call SP 3-2151, Hartselle, Ala. 1tc

**APARTMENTS FOR RENT — 1 furnished apt. (1 bedroom), One unfurnished apt. (1 bedroom), electric heat, air conditioned, stove, refrigerator, venetian blinds furnished. 3 blocks from downtown, new building. Couples only. No pets. 611 Madison St., S. Phones 534-3623 or 534-5281. 7-12c**

**FOR RENT — Newly decorated nicely furnished 3 room apartment.** Private front and back entrance, private bath, tub and shower, air conditioned, floors nylon carpet, off street parking, TV cable furnished. \$85.00 mo. Couple only. 419 E. Clinton St., Phone 534-5127 or JE 4-4551. 7-6c

**PRUDENTIAL for the best in LIFE Insurance. For the best in HOME insurance — the Homeowner's Package.** New lower rates and improved coverage plus OUR 15% DIVIDEND. Call John E. Broyles Agency, JE 6-0711 or 534-8615. ttc

**ABS SECRETARIAL SERVICE — Complete Secretarial Service. Typing - mimeographing - mailing service. Telephone answering. Notary Public. Latest City Directory. Desk and/or office space for rent, (off street parking). Ideal location. 528 Madison Street, South. Office phone JE: 4-6451 - Home phone JE: 4-6433 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 JE 6-6121. ttc**

**MODERN HEALTH Club Services — Central YMCA, 203 South Green 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**

**FURNITURE & APPLIANCE BARGAINS**  
Drive out and see our display of quality home furnishings at wholesale prices. Our low overhead permits us to give you extra discount savings. Easy budget terms available. Furniture Outlet Store, Meridianville, Ala., phone JE 6-6857. Go Out-a-Way—Less-to-Pay. ttc

**FOR RENT—5 room unfurnished apartment at 1122 Wellman Ave., near schools. \$65.00 per mo. Phone JE 4-9311 or 534-5697. ttc**

**FOR SALE — Excellent 1956 Detroit trailer 31'x8' Air Conditioned Hide abed, Hitch, other extras. SLEEPS 4. \$1995 full Price. Call JE 6-6031. 1tp**

**FOR SALE — Large 3 bedroom home-completely air conditioned - built in Kitchen with Range - oven - Hood - dishwasher intercom - 1 1/2 tile baths - large lot - attached carport and storage area - 850 down F.H.A. or \$2500. Equity. JE 9-3153. 1tp**

**ROOMS FOR RENT—Single and double for men with good habits, completely and newly decorated, economically priced. Central Y.M.C.A. Dial JE 4-6452. ttc**

**IMMEDIATE CASH FOR — low equities, phone JE 4-0305 days or JE 6-4828 nights. 7-6-c**

**WILL SELL CHEAP — 1953 Packard, straight shift, radio, heater, good tires, excellent condition, phone days JE 9-5766-nights JE 6-9296. 1tc**

**HOUSE FOR SALE, DECATUR— 3 bedroom brick, air conditioned, 2 full baths, separate dining room, hardwood floors, large lot. J. C. GEOGHEGAN, 1614 7th Ave., S.W., Decatur, Phone EL 3-3343. 1tc**

**FOR SALE OR RENT — New and used PIANOS and ORGANS. We tune and recondition your piano. "Your new Baldwin Dealer". TRAYLOR and HADLEY, INC., North Memorial Parkway. Phone JE 9-6241. ttc**

**ROCKET CITY UPHOLSTERY CO., — Open in new location. Now manufacturing COUCHES, SOFA BEDS, and OTTOMANS. Full size couches and sofa-beds, also two smaller sizes to fit your room space. Ottomans also come in two sizes with storage space. Call us for all your furniture needs, also all types automobile upholstery work, seat covers, door panels, etc. For free estimates and easy terms dial JE 4-9696 days or JE 6-7220 nights. Open from 8 'til 8. ttc**

**FOR SALE — Wooded waterfront lots — Holiday Shores—Honeycomb Lake (Guntersville) 25 mi. from Huntsville on Highway 431. Watch for sign on Highway. Salesman on property, Lot 13, on weekends. Call Huntsville JE 6-6767 or Guntersville JU 2-3258. 7-27c**

**SUGAR BARREL, HICKORY, WALNUT, CHERRY and other MIDDLETON'S FINE PIPE TOBACCOS**  
Sold Exclusively in Huntsville By—  
**Northside News**  
819 Meridian St. — JE 4-7612

**EQUITY SALE, by owner, save \$1000 3 bedroom brick, central air conditioning, Bel Aire, phone JE 6-6695 or Thiokol Ext. 6-6373.**

**\$750 EQUITY — S.W. near arsenal - 2 bedroom, den, carport, workshop. Payments \$71.62 mo. including taxes and insurance. No closing costs. JE 6-2253 1tp**

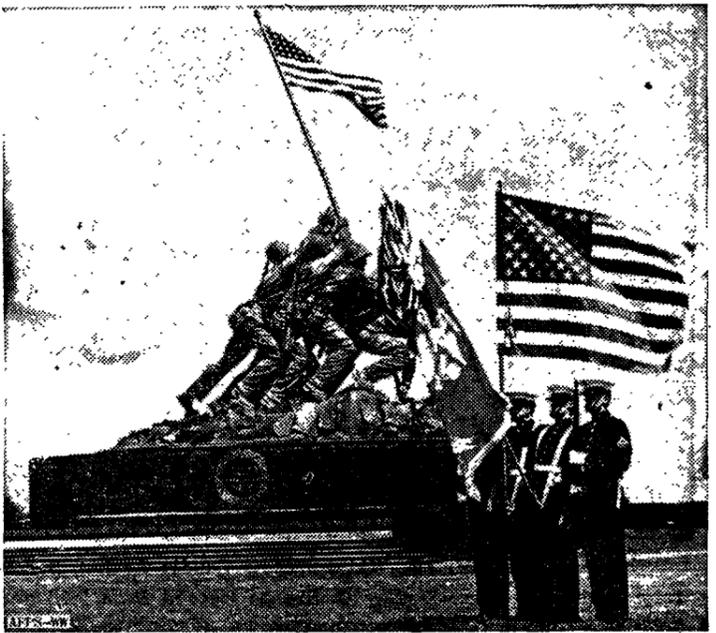
**BEST HOME BUYS — Best location in town (just outside Gate 9). On 100% GI loans or minimum FHA terms. Sherwood Park, 534-3113, JE 6-7421. 1tc**

**WILL CARE FOR CHILDREN in my home for working mothers (Hillandale Section). Convenient to arsenal. Call JE 6-9887. 7-13p**

**4117 GARTH ROAD, S.E. 3 Bedroom, 2 Bath, with Central Air Conditioning. Will finance equity without closing cost under any reasonable basis for responsible party. Shown by appointment. R. J. Broun, Extension 3-2627. ttc**

**FOR SALE — 7 room house, 3 bedrooms, den, \$17,500.00, monthly payments \$86.62, in Fleming Meadows. Phone JE 6-2103. 7-6c**

**MUST SACRIFICE — Cabin on Elk River, 1.6 acres, boat house 34'x34' cabin, pine panel furnished, screen porch, 200' frontage, well and pump. First \$4,500.00 will buy. Call BILLY SWEETLAND at work 3-1248 or Athens 365 after 5 p.m. 7-6p**



**NEW 'OLD GLORY'—By custom, the star denoting a new state is added to the U. S. flag on July 4th. Here the flag is seen at the Marine Corps Memorial at Arlington, Va. The famous memorial, based on a WWII photo by AP photographer Joe Rosenthal, shows the flag-raising at Mt. Surabachi, Iwo Jima. The other flag carried is the Marine Corps colors with battle streamers.**

**ONE FOR THE ROAD: Speed gets you there — but where?**

**OWNER SELLING home with wonderful indoor-outdoor living. You must see this 3 bedroom, 2 bath brick home with separate family room opening on patio. Large kitchen with extra cupboards — has wife appeal. Fine location in Highlands. Equity is only \$1940. Call 534-8870. 7-13p**

**FOR SALE — 3 bedroom new brick home, double carport, paneled den and kitchen, built-in range oven and hood, 1 1/2 baths, large lot. Located in Daniels Second Addition on Arthur Ave. \$18,000.00. F.H.A., down payment \$850.00. Call JE 4-9809 or JE 6-2689 to see. ttc**

**Rhymes of the Times**

Do your VERY BEST EACH DAY AND SUCCESS IS BOUND TO COME YOUR WAY.

PROMOTIONS  
BUSH A. LEWIS JR.  
WILLIAMS  
FINNERTON  
M. G. BROWN  
M. J. BRADLEY  
M. J. BRADLEY

**LOTS FOR SALE—\$200.00 down, monthly payments. Well restricted building lots in Moore Subdivision. Madison. Water, gas, electricity. Near City park and swimming pool. Phone JE 4-0305. 7-20c**

**Water Wells Drilled**  
**PUMP SALES — SERVICE**  
Wells and Pumps Financed at Bank Rates — Up to 36 Months to Pay.  
**Crunk Drilling Co.**  
Huntsville, Alabama  
JE 6-2027

**U. S. TIRE SERVICE**  
For  
**U. S. TIRES**  
And  
Fully Guaranteed  
**COMPLETE RECAPPING SERVICE**  
Located Across From Butler High School  
DIAL 534-5312

**LOANS**

**...in Double-Quick Time!**

**\$25 to \$300**

Examples of Repayments . . . at the new office of  
**24-Month Plan** Cash Mon. You Get Paym't  
**12-Month Plan** Cash Mon. You Get Paym't

\$ 84.68	\$ 5.00	\$ 59.72	\$ 6.00
101.61	6.00	99.54	10.00
203.28	12.00	179.17	18.00
256.08	15.00	239.53	24.00
300.00	17.42	300.00	29.87

**Get Acquainted!**  
**\$50 for 30 Days ON NAME ONLY**

**SPECIAL SERVICE to Military Personnel**

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Established 1872

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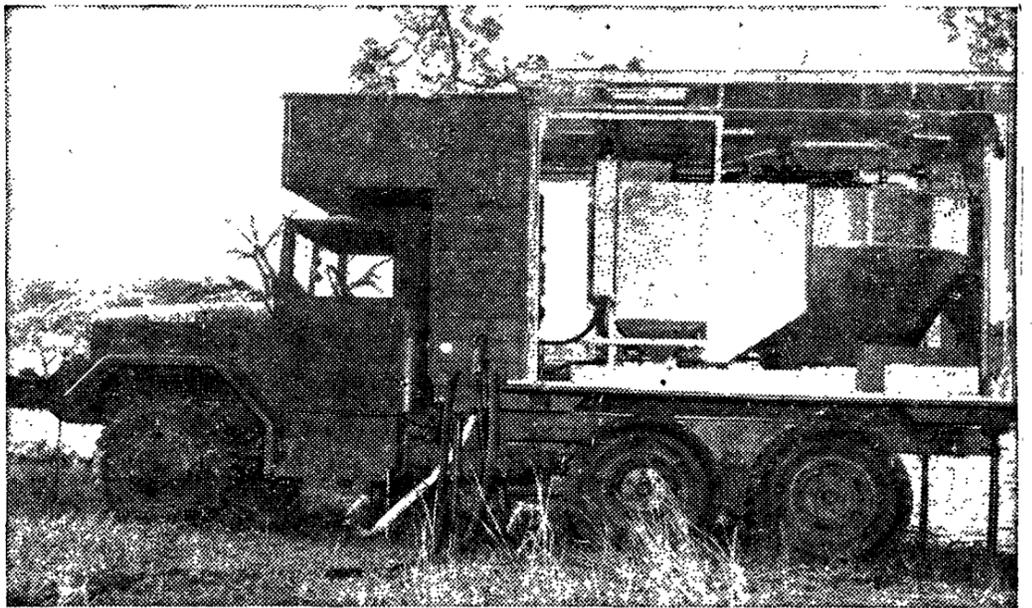
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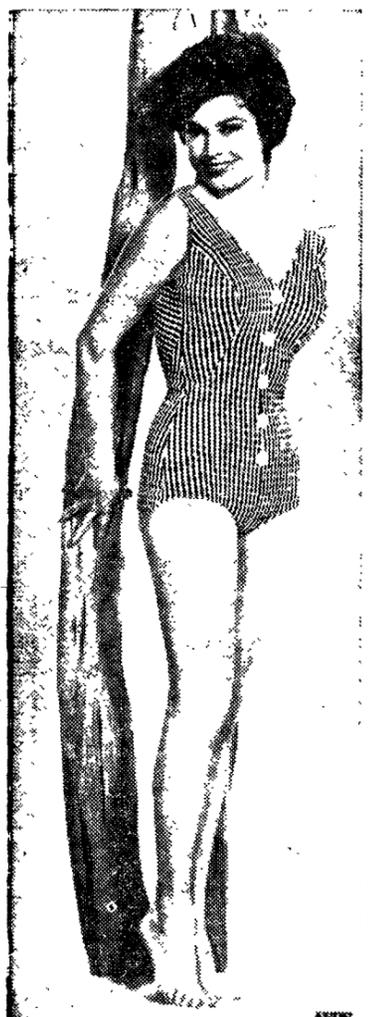
**FEATHERED GIFTS**—While visiting Saudia Arabia, Secretary of the Air Force Dudley C. Sharpe (second from left) and Brig. Gen. James C. McGhee, Chief of the U. S. Military Training Mission to Saudia Arabia, (left) receive a few pointers on falconry from his Highness Amir Otishan (right). This followed the presentation of two royal falcons, gifts from King Saud of Saudia Arabia to the U. S. Air Force Academy.



CALL IT "AQUA PURA," "l'eau potable" or "trinkwasser," it all comes out pure water from this highly-mobile modern Army unit which was air-lifted to Chilean disaster aid. Potable water, free of all contamination, both bacteriological and radiological, will be a dire need for both the military and civilians in the event of future nuclear war—and this product of Army Engineer R&D may well fill the bill. The unit is capable of producing 1500 gallons of potable water per hour.

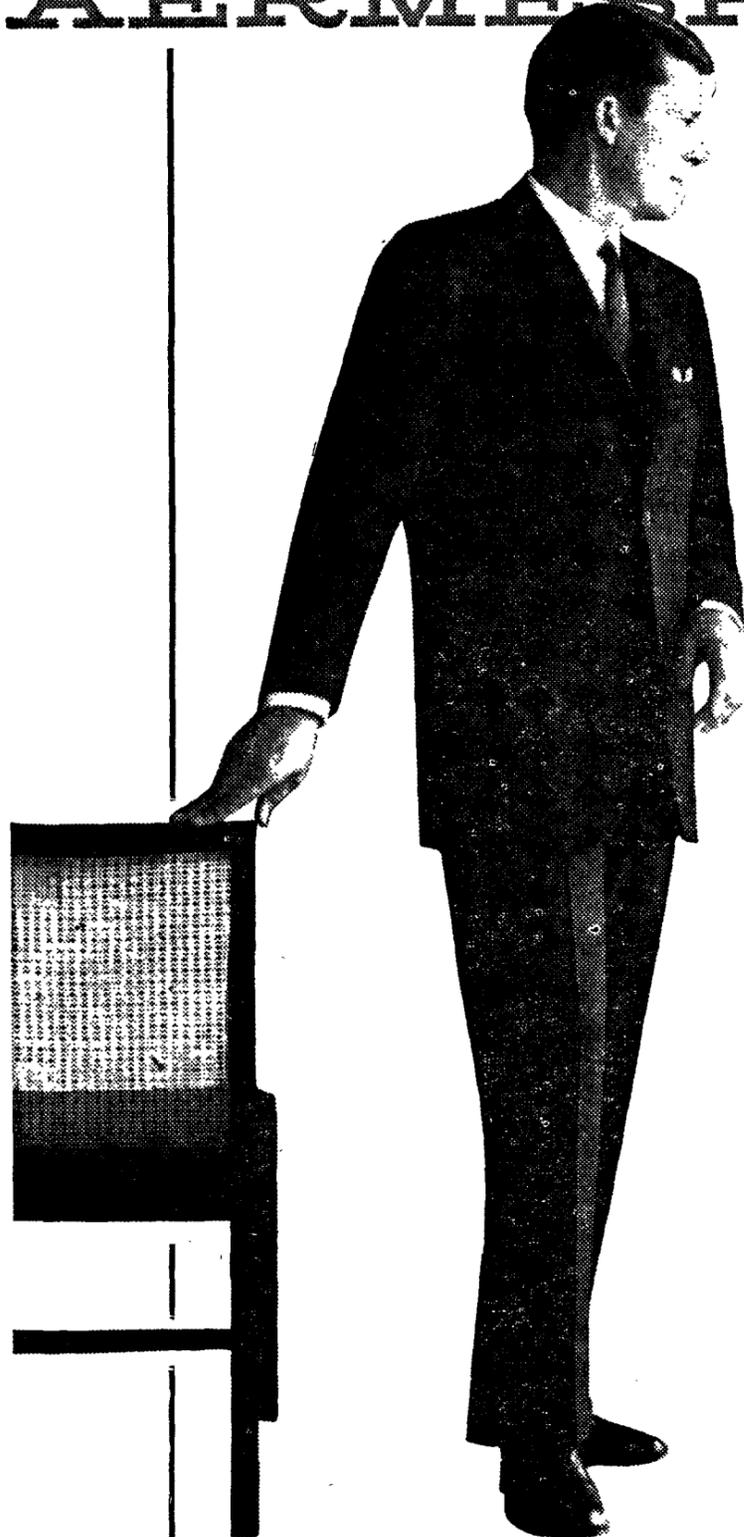
**Births at Post Hospital**

David Eugene Mettam, 8 lbs. 2½ ozs., June 24, son of 1st Lt. and Mrs. Richard E. Mettam  
 Daniel Bryan Tanner, 7 lbs. 9¼ ozs., June 25, son of M/Sgt. and Mrs. William A. Tanner  
 Janet Lee Patterson, 9 lbs. 3¼ ozs., June 25, daughter of Mr. and Mrs. William L. Patterson  
 Patrick John Kopczynski, 7 lbs. 2¼ ozs., June 26, son of SP4 and Mrs. John J. Kopczynski  
 Richard Oneal Lindsey Jr., 7 lbs., 13¾ ozs., June 26, son of Sgt. and Mrs. Richard O. Lindsey.  
 Mark Alvin Bilbrey, 6 lbs, 12½ ozs., June 25, son of Pfc. and Mrs. Donald R. Bilbrey.  
 Bryce David Deary, 6 lbs. 2½ ozs., June 27, son of Pvt. and Mrs. Douglas J. Deary  
 Scott Lee Underwood, 7 lbs. 3½ ozs., June 27, son of Pfc. and Mrs. Lee D. Underwood.  
 Carl David Webster, 8 lbs. 5 ozs. June 28, son of 2nd Lt. and Mrs. Dodson C. Webster  
 William O'Brian Crow, 3 lbs. 15¼ ozs, June 29, daughter of SP4 and Mrs. Elton E. Crow  
 Martha Susan Wilson, 6 lbs. 15 ozs., June 29, daughter of Capt. and Mrs. Jack D. Wilson.  
 Gregory Lynn Powell, 9 lbs., 8¼ ozs, June 29, son of T/Sgt. and Mrs. Respress E. Powell



**YOUR MOVE** — She's in a checkerboard bathing suit but swimming is the only game on the mind of raven-haired Valerie Allen, currently on view in MGM's new musical "Bells Are Ringing."

Air-cooled comfort is part of the warp and woof of Hart Schaffner & Marx **AERMESH**



Comfort and easy care is woven right into every HS&M Aermesh suit. Aermesh is 45% worsted and 55% Dacron polyester. Millions of tiny meshes trap fresh, cool air and Dacron keeps Aermesh's trim, slim lines (the worldly new look of HS&M) in press through the most humid days.

**\$6950**

DIAL JE 4-6425  
 For Free Delivery



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