

# Army Develops Plastic Missile Packing Cases

The plastic packing cases in which missiles are transported are now doubling as launching tubes in some cases, Army Ordnance Missile Command officials have revealed.

Plastic is used instead of metal because it has the very desirable characteristic of returning to shape when deformed.

When it is desired to use the missile packing case as a launcher, the case must not only protect the projectile, but it must not suffer damage itself. A dent in the firing tube would likely play havoc when the rocket was fired.

## Plastic Serves Purpose

Plastic serves all the requirements for a packing case plus all the requirements for a launching tube. It is light, but strong. The strength of a plastic tube compares fairly well to a heat-treated steel, while the weight is approximately one quarter that of steel.

For instance, one tube recently tested by the Army withstands an internal pressure of approximately 300 psi, yet it has only a .050 inch wall thickness and weighs .745 pounds.

The tube is rust-proof and dent-proof, and is not of strategically important materials. You can drop it, stand on it, jump on it, or throw it without damage. This type of ruggedness could not be accomplished with metal within this weight, AOMC officials say.

Further, as this tube is formed on a mandrel, the inside diameter tolerance can be controlled easily.

## Need Long Recognized

The Army Ordnance Corps has long recognized the economical and logistical advantages that would be gained from firing rockets or guided missiles directly from the missile packing cases, thus eliminating the need for auxiliary launchers.

Back in 1950-51, Ordnance applied this principle to area fire type missiles where pinpoint terminal accuracy was not required.

The combination packing case-launching tube resembles in appearance a simple conventional case. For firing, the packing case, containing the rocket round, is in-

serted into a simple mount, the end covers are removed, and the packing case has become a launching tube. After firing, the tubes can be removed from the mount and discarded.

But even the earliest and simplest application was not without its problems. There was at least one development test incident in which the packing case tube went right along with the rocket when it was fired.

However, the application did prove very successful. Also, the principle was successfully applied to several small guided missiles which did not require exact trajectory launch.

## Principle Extended

In the past few years, Ordnance has been extending the principle of firing from the packing case to rockets and guided missiles where exact launch trajectory is required. The demand for high launch accuracy placed stringent requirements upon the ammunition packing case.

In the area of individual portable weapons still more stringent requirements of weight and bulk apply.

As you apply these requirements to the ammunition packing case, the package begins to lose its identity as a conventional ammunition packing case and more closely resembles a simple packing tube.

## Problems Encountered

Ordnance has encountered (and is still encountering) a number of problems in attempting to apply the concept of firing missiles direct from ammunition packing cases.

In attempting to apply this concept to individual portable, shoulder firing weapons, the developer is faced with a very narrow path of design freedom bordered on one side by the requirements for performance, safety, ruggedness, and reliability, versus the other side of the path where the requirements are for light weight and economy.

In a design development, it soon becomes impossible to draw improvements from one side of the path without paying corres-

ponding expense in the requirements on the other side.

## Bulk Is Problem

First, a look at the problem of bulk. For accurate launch trajectory on any given missile, a certain tube length is required. Also, missilemen in the field don't like rocket exhaust blowing back in their faces, so they ask the rocket developers to do all their rocking burning within the tube and let the projectile come out of the muzzle clean.

In the case of some weapon systems, the tube length is not a serious problem. For instance, in the Redeye missile, the required firing tube length is approximately the same as the missile length, so that proper launch and booster motor burnout are accomplished within the same tube length required to just package the missile.

However, there might well be a condition where the launching tube length might be considerably longer than the projectile package length. If the developer makes the packing case the full length required for launching, the result is an unnecessarily bulky tube length for shipping, storage, and unnecessarily clumsy tube for the man in the field to carry around.

## How To Compensate

To compensate for this problem, developers considered telescoping the launcher so that it could be collapsed within itself for carrying, then extended to the required length for firing. This concept adequately solves the bulk problem, but introduces technical design problems of alignment, gas sealing, extendable mechanisms for firing, sighting, unit costing, etc.

Regarding performance requirements, a packing case which serves as a launcher for an accurate trajectory launch requires close tolerances between the inner surface of the tube and the siding of the projectile and the tube exceed .010 inches. Consequently, the packing case must be made with a controlled inside diameter, and a material where surface tolerance can be controlled.

Also, if the projectile must ride through a change of inside dia-



**GOVERNOR DECLARES ARMED FORCES DAY**—Governor John Patterson presents a proclamation announcing Saturday, May 21, as Armed Forces Day in Alabama to Lt. Col. James B. Duncan, area project officer. Capt. Donald L. Collins, member of the project group, is at the extreme left.

meters, some method must be derived to ascertain the required riding tolerances, at least in the forward section of the launching tube.

This is easy to accomplish if the projectile is of sufficient length to allow some surface to stay in the forward section of the tube when the launcher is extended. It becomes a much more severe problem when all surfaces of the projectile must pass from one section to another of different inside diameters.

## Ruggedness Is Factor

The next consideration is ruggedness and safety. A packing case for a round of ammunition

must be of sufficient ruggedness to withstand field handling and protect the projectile inside. This means it must be able to withstand dropping, getting wet, being carried in the floor of a loaded vehicle, etc.

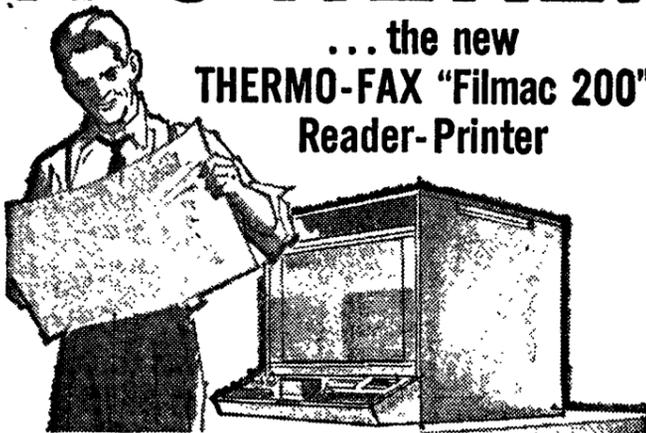
Plastic serves all the requirements for a packing case plus all of the requirements for a launching tube.

There was one interesting side advantage of this particular type tube. Development personnel were searching for a tube to contain 600 psi pressure, and had investigated several different types. At the same time, they were also in-

(Continued on Page 2)

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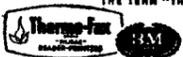


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## Army Develops

(Continued From Page 1)

Investigating induced rocket motor blow-up. In one instance, after they had evaluated a tube for its purpose and found it satisfactory, they used the surplus samples as a media for launching the faculty rocket motors they had under investigation. They were quite pleasantly surprised to find that, after blowing up a rocket motor in the tube, it had held all of the motor fragments.

This was an unexpected safety factor and one which could be had for nothing.

The Redeye missile project now has a requirement that the launcher tube be able to withstand a rocket motor blow-up. This weapon rests on a man's shoulder and thus exposes his head to a serious hazard should the booster malfunction and fail under excessive pressure.

### Must, Sight, Fire

There is still another interesting aspect to this packing case which must also serve as a launcher. The case must also have a means of sighting and a means of firing the projectile, and these features must not interfere with the utilization of the tube as a packing case.

Also, in the Redeye, the missile must be hermetically sealed in this packing case-launcher tube to protect the sensitive electronic elements during handling and storage. The missile must have the capability of being warmed up for firing without destroying this hermetic seal to cover the event

To overcome this sealing problem, the Redeye developers are looking at covering the tube muzzle with a secondary membrane cover which will allow the infrared radiation to pass without destroying the seal. Then if the missile is actually fired, it would pass through the membrane seal. If not, the system can be restored to carry condition and still be protected until it is used.

### Weight And Cost

As the packing case-launcher must accompany each round of ammunition, unit weight and unit cost become extremely critical factors. Each factor added for ruggedness, safety, or performance adds weight and cost to the unit. To live within the one-shot thrown-away concept, the unit cost must be held to an absolute minimum.

Consequently, the design must take into consideration the methods of manufacture which will ultimately, on large quality production, result in the lowest possible unit cost.

Also, simplicity of assembly is an important consideration in the design.

Ordnance has only begun to apply the potentials of the disposable packing case-launcher concept. In the future, developers will continually be looking into such things as:

1. Stronger, light, and cheaper tube materials.
2. Reliable, simple methods of collapsing or telescoping launching tubes.
3. Reliable, simple fire control and sight methods.

The criteria of the ammunition round packing case must be brought up toward the requirement of a launcher at the same time the cost of the launcher is brought down to become competitive with the conventional packing case.



**EM AWARDED FOR SAFE DRIVING:** In the picture above are five enlisted men of the Medical Detachment, U. S. Army Hospital, Redstone Arsenal, who were presented the Department of the Army individual award for safe driving performance. Each of the enlisted men have driven army ambulances in excess of 8,000 miles during a period of 12 consecutive months without an accident. Shown left to right are: PFC. George H. Spence, PFC. Bobby G. Clark, SP4 Marvin L. Mettler, PFC. James D. Elledge, SP4 Wallace D. Akins, Capt. Earl W. Lauck, Detachment Commander, and Col. Harry C. McClain, Post Surgeon, who presented the awards. In presenting the awards Col. McClain stated "The safe conduct each of you have shown in the operation of army motor vehicles is highly commendable, and sets a fine example for others to follow."



HANS HUETER

### Hueter Is Appointed Director of Agena, Centaur Programs

Dr. Wernher von Braun, who has been named director of the Marshall Space Flight Center, NASA, has appointed Hans Hueter project director of the Agena and Centaur programs.

Hueter assumes the new position as an additional duty. For the

### Dzuiban's Book Tells Of Joint Efforts By U.S.-Canada in War

Washington (AFPS) — How Canadian and U.S. forces fought

present he will continue to direct the Systems Support Equipment Laboratory, one of the 10 laboratories in Dr. von Braun's Development Operations Division, ABMA, which will transfer to the Marshall Center on July 1.

The Agena and Centaur are NASA rocket programs which are to be assigned to the Marshall Center for management supervision. The Marshall Center will be responsible for developing and launching NASA's future space vehicles.

Hueter is an original member of the von Braun team with 25 years of rocketry experience. He was chief test engineer at Peenemuende from 1937 to 1945.

shoulder to shoulder on land, sea, and in the air is the subject of a new Army historical volume, "Military Relations Between the U.S. and Canada, 1939-1945."

Authored by Col. Stanley W. Dzuiban, the new work is the latest in the series, "U.S. Army in World War II," and was recently issued by the Army's Chief of Military History.

Paying tribute to U.S.-Canadian cooperation, Col. Dzuiban reported that the common effort "ranged from the prosaic growing of wheat to the climactic development of the atomic bomb."

High adventure and epic feats also characterized the two nations' joint construction efforts as airbases, telephone lines, pipelines and roads—including the Alaska-Canada Highway — were laid in the raw Arctic wilderness.

The new volume may be purchased for \$5.00 from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.



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**MODIFIED CLASSIFIED MATERIAL PULPER**—(Left to right) Tom Frazier, Ellis Mason, William D. Bradford and K. E. Shields of the Redstone Arsenal Transportation Office stand beside the classified material pulper that was modified in the Transportation shops to fit the needs at the Arsenal. The pulper, built by the J. B.

Sedbury Company, works on a hammermill process and is operating in place of a wet processing unit which had proved unsatisfactory. Intelligence and Security, Redstone Arsenal, schedules visits of the pulper to areas where classified material is to be destroyed.

needs for disposing of classified material here included: Tom Frazier, Ellis Mason, William D. Bradford and K. E. Shields.

**INTELLIGENCE AND SECURITY HAS NEW CLASSIFIED MATERIAL PULPER**

A paper pulper, nicknamed "The Monster" before it began operation by the Intelligence and Security Office, Redstone Arsenal, has replaced the unit called the "Purple Paper Eater" to dispose of classified waste.

"The Monster" disposes of classified papers through a hammermill process. The "Purple Paper Eater" required water to complete the pulping process.

Visits to areas where classified material is to be destroyed are scheduled through the Security.

Survey and Visitor Control Branch of the Intelligence and Security Office, Redstone. The men instrumental in obtaining the unit and directing its operation are Bill Johnson, chief of the Branch and James K. Levie, who made arrangements for the purchase of and helped modify the pulper, and Jack Hartleine.

The new machine has a capacity for pulping 700 pounds of paper an hour, an increase of 200 pounds over the unit which has been used.

Operation of the new machine will require one man to operate. Classified papers which are no longer useful can be placed on the conveyor belt operated by pushbutton, fed into the maw where the hammers pulp them to the size of the selected screen which can be coarse or powder fine, blow them through a flexible pipe into the covered trailer which was specially built by the Redstone Arsenal Transportation shop, toned off by the truck which houses the pulping unit to the dump, and fed into the dump by opening the trailer door and pushing the button which operates the conveyor belt for unloading.

The old machine spouted wet paper pulp into a dump truck bed. This pulp was spread and unloaded by the machine's operator. It had another fault: The water froze in an icy wind, effectively stopping all pulping until the weather warmed up.

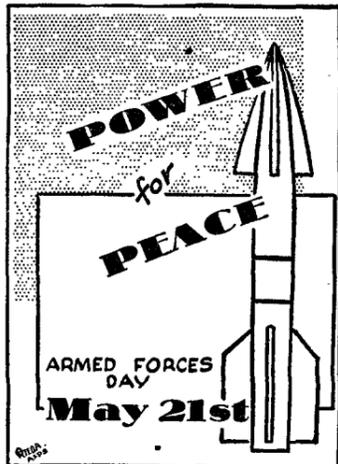
The Intelligence and Security men estimate a \$60 per month savings with the new operation in addition to speedier service. This is the first pulper the manufacturer: J. B. Sedbury Company of Tyler, Texas has furnished for disposal of classified material although in their forty years of operation they have made pulpers for everything from baby food to metal scrap.

With the faster operation, it is

expected that more immediate service can be rendered for disposing of classified waste. Areas, which have been problem areas in the past, will be able to call for and get service more regularly, often immediately.

The unit is operated by Raphael Gentle, Intelligence and Security Office.

The men from the Post Transportation Shop who redesigned the unit and modified it to fit the



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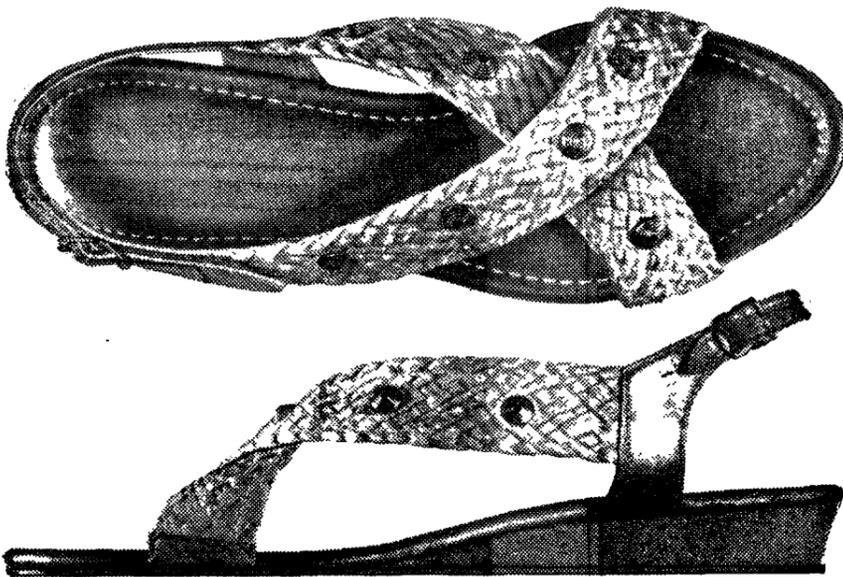
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# INCENTIVE AWARDS

Individuals\* in the Army Ordnance Missile Command recently awarded Outstanding, Sustained Superior Performance, and Special Acts or Services awards include:

## Outstanding

Benton E. Phelps, Jr., Supv. Accountant, Finance and Acctg., RSA; Norene G. Brooks, Clerk Typist, Admin. Div., RSA; Jean M. Rossman, Clerk General (Typing), Control Office, USAOMC; Thomas M. Gunn, Jr., Supv. Elec. Inspector, S A & R Lab, ABMA; Shirley M. Walsh, Secretary (Steno), Control Office, ABMA;

Burton S. Shook, Medical Officer, Post Surgeon, RSA; Wiley O. Sanders, Prod. Control Spec., Fld. Maint. Div., RSA; Raymond H. Fraser, Supv. Accountant, Finance & Acctg. RSA; Paul J. Eddy, Tab Project Planner, Finance & Acctg, RSA;

John Cresap, Prod. Superintendent, F & A E Lab, ABMA; Dwain T. Walters, Admin. Officer, F & A E Lab, ABMA.

## Sustained Superior Performance

Thelma W. Wetmore, Clerk-Steno, Civ. Pers., RSA; Norene G. Brooks, Clerk Typist, Admin. Div., RSA; Gerald D. Burnett, Construction Mgmt. Engr., Post Engr., RSA; Benton E. Phelps, Jr., Supv. Accountant, Finance & Acctg, RSA; Ellis B. Hindman, Truck Driver, Consolidated Supply, RSA;

Dorothy I. Holland, Stock Control Clerk, Post Engr., RSA; William A. Burch, Jr., Maint. Gen. Foreman Asst., Post Engr., RSA; Frank W. Hayes, Auditor, Control Ofc., RSA; Jimmie S. Butler, Passenger Traffic Clerk, Post Trans Div, RSA; Shirley M. Walsh, Secretary (Steno), Control Ofc., ABMA;

Thomas M. Gunn, Jr., Supv., Elec., Inspector, S A & R Lab, ABMA; Reece J. Love, Engr. Designer, Aero Lab, ABMA; Bobby B. Henson, Research Engineer, Test Lab, ABMA;

Clemmons T. Glen, Secretary, Ofc. of Dir. DOD, ABMA; Julian Hart, Jr., Tech Programs Officer, Ord. Msle. Labs, ARGMA; Warren C. McLain, Tool, Die & Gage Maker, F & A E Lab, ABMA; Dwain T. Walters, Admin. Officer, F & A E Lab, ABMA;

John Cresap, Production Superintendent, F & A E Lab, ABMA; Jane F. Bentley, Supv. Librarian, Operating Svcs. Ofc, ABMA; Raymond H. Fraser, Supv. Accountant, Finance and Accounting, RSA; Wiley O. Sanders, Prod.

Officer (General), Post Surgeon, RSA.

## Other Awards

William O. Walter, Guard, Provost Marshall, RSA; Harvie F. Johnson, Guard, Provost Marshall, RSA.

Page 4

THE REDSTONE ROCKET — MAY 18, 1960

TIME MARCHES ON: The recruit who used to be sent after the cannon report is now being sent to supply for a gallon of war-head shampoo.

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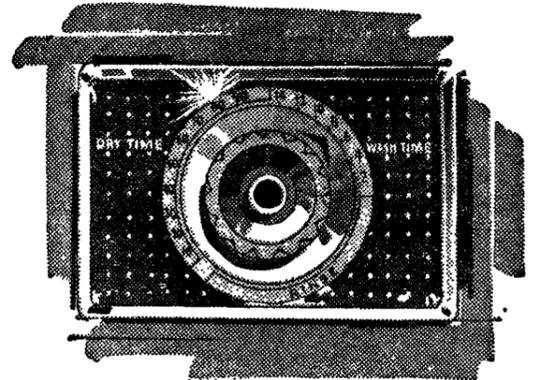
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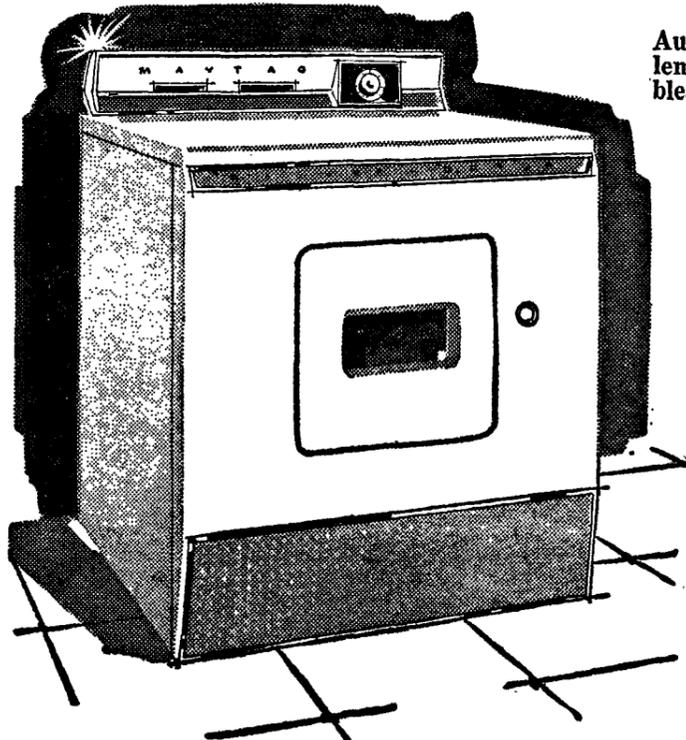
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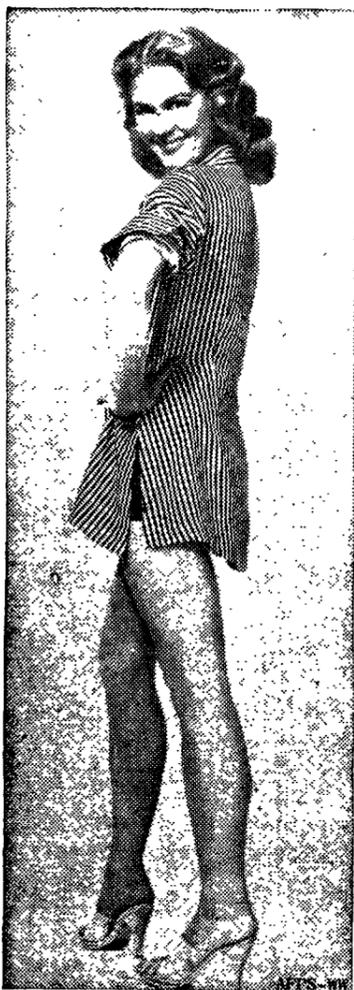


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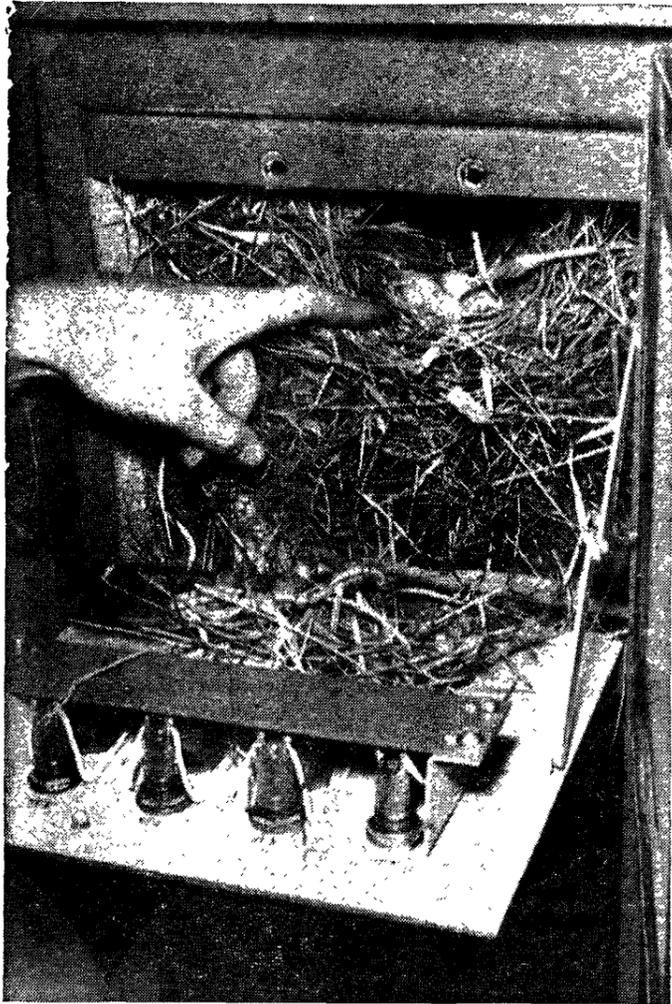
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IN THE CAMERA'S EYE—Former top fashion model and motion picture star Joan Caulfield has been turning up lately on television.

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**STARLING FOR THE STARS** — A bird with high-flying ideas built this nest in the control van of a Nike missile at the Army Ordnance Guided Missile School. The starling entered a ventilation hatch of the van shown in picture and crept behind a panel of electronic tubes to find a home.



(APPS Working Feature)

For those servicemen who will be going fishing for the first time this summer, here is a short glossary of some of the terms they will be coming across.

**Backlash** — usually called "1&%\*\* backlash," refers to a tangle on the spool or reel caused by the spool's overrunning the line as the line is cast or pulled from the reel.

**Bass Bug** — a fairly large floating lure, usually made of deer-hair, cork or wood, intended to be cast with a flyrod when surface fishing for bass and other fish.

**Dry-Fly**—a small, artificial lure made with stiff hackles tail that support it on the water's surface.

**Guide** — one of several metal loops through which the line passes along the length of a fishing pole. Also a character who knows where the fish hang out.

**Hackle**—feathers having a hair-like filament that are used to simulate insect's legs on an artificial fly.

**Wet Fly**—an artificial lure with soft hackles that sinks and is fished below the water's surface.

**Popper**—a surface plug with a



**ARMED FORCES DAY—1960.** The Air Force air-to-ground strategic missile, HOUND DOG, is shown aloft, as carried by a B-52 eight-jet bomber of the Strategic Air Command. The B-52 carries two HOUND DOG missiles, shown inboard nearest the fuselage under each wing.

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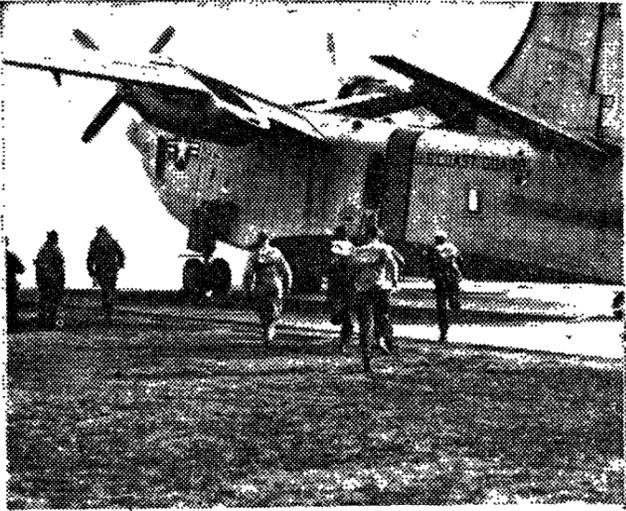
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**HOME DECORATORS**

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— TERMS IF DESIRED —



ARMED FORCES DAY—1960. A US Coast Guard crew scrambles for a Marlin amphibious plane called out on a rescue mission.

**POST LIBRARY**

**ANNA L. FARRAR, Librarian**

The library has recently added the titles listed to its collection.  
 Eric Ambler, "Passage of Arms."  
 Isaac Asimov, "Realm of Numbers."  
 Marjorie Barrows, "The Quintessence of Beauty and Romance."  
 Roy Bedichek, "Sense of Smell."  
 Robert Bendiner, "White House Fever."  
 Ruth Berkin, "Partners in a World Team."  
 Phyllis Blaustein, "Doctor's Choice."  
 Alba de Cespedes, "Between then and Now."  
 Savitri Chowdhary, "Indian Cooking."  
 Richard Condon, "Some Angry Angel."  
 Elizabeth Corbett, "Hamilton Terrace."  
 John Creasey, "Death of an As-

sassin."  
 John Creasey, "Missing."  
 Donald Downes, "Easter Dinner."  
 Maurice Druon, "Curtain Falls."  
 Roger Eddy, "A Family Affair."  
 Edward Ellsberg, "Far Shore."  
 Beryl Epstein, "Young Faces in Fashion."  
 Esquire, "The Esquire Culinary Companion."  
 Stebe Frazee, "Hellsgrin."  
 Wilfred Funk, "Word Origins and Their Romantic Stories."  
 Erle Gardner, "The Case of the Foot-loose Doll."  
 Erle Gardner, "The Case of the Long-legged Models."  
 Erle Gardner, "The Count of Nine."  
 John Gause, "Guide for the Military Writer."  
 Janice Giles, "Johnny Osage."  
 Carroll Glines, "Grand Old Lady."  
 Georges Guilbaud, "What is Cybernetics?"  
 Alfred Guthrie, "Big It, and

Other Stories."  
 Louise Hastings, "The Southern Garden Book."  
 Cameron Hawley, "The Lincoln Lords."  
 Denys Haynes, "Der Parthenon-fries."  
 Martin Heinecken, "God in the Space Age."  
 John Hersey, "The War Lover."  
 Patricia Highsmith, "This Sweet Sickness."  
 Evan Hunter, "Give the Boys a Great Big Hand."  
 Robert Kennedy, "The Enemy Within."  
 Nikita Khrushchev, "For Victory in Peaceful Competition with Capitalism."  
 Ruth Kilgour, "A Pageant of Hats, Ancient and Modern."  
 Morris Kline, "Mathematics and the Physical World."  
 John Knowles, "A Separate Peace."  
 Erich Kuby, "Rosemarie."  
 Francois Leuret, "Modern Miraculous Cures."  
 Clive Lewis, "World's Last Night."  
 Mary Lewis, "The Marriage of Diamonds and Dolls."  
 Henry Lindgren, "Meaning: Antidote to Anxiety."  
 Juliet Lowell, "Dear Folks."  
 John McElroy, "This Was Andersonville."  
 Alistair MacLean, "Night Without End."  
 Hugh Massingham, "The London Anthology."  
 Garrett Mattingly, "The Armada."  
 Anne Mehdevi, "Don Chatc."  
 Ogden Nash, "The Christmas

That Almost Wasn't."  
 George Nelson, "Cavalcade of the North."  
 John Miller, "Cartwheel."  
 David Osborne, "Aliens from Space."  
 Maxim Oswald, "Asia Minor."  
 Tristan Remy, "Le Cirque de Moscou."  
 Joseph Rhine, "Parapsychology."  
 Claude Roy, "L'Opera de Peking."  
 Samivel, "Tresor de L'Egypte."  
 Paul Schnellmann, "Regards Sur le Jardin D'Allah."  
 Helmut Schoppa, "L'Art Roman dans les Gaules."  
 Jean Secret, "Castles in Perigord."  
 Benjamin Spock, "The Common Sense Book of Baby and Child

Care."  
 Christian Staub, "Circus."  
 Maxwell Taylor, "Uncertain Trumpet."  
 Anthony Trupo, "How to Control Your Destiny."  
 Marjorie Vetter, "The Questions Girls Ask."  
 Wezata Forlag, "European Cooking; Traditional Recipes from 24 Nations."

**SPECIAL FORCES FACT:**

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**PATENTS AWARDED** — The first patents to be awarded to anyone in the Army Ballistic Missile Agency under the present organization of the Patent Branch, Army Ordnance Missile Command Legal Office, were presented to Kenneth E. Joy for an inflatable inclosure and Oscar H. Holderer for a clinometer. (Left to right): Col. Thurston T. Paul, Deputy Commander of ABMA, recently made the awards to Joy and Holderer. At the far left is Victor L. Billings, AOMC Legal Office, who specializes in patent investigations.



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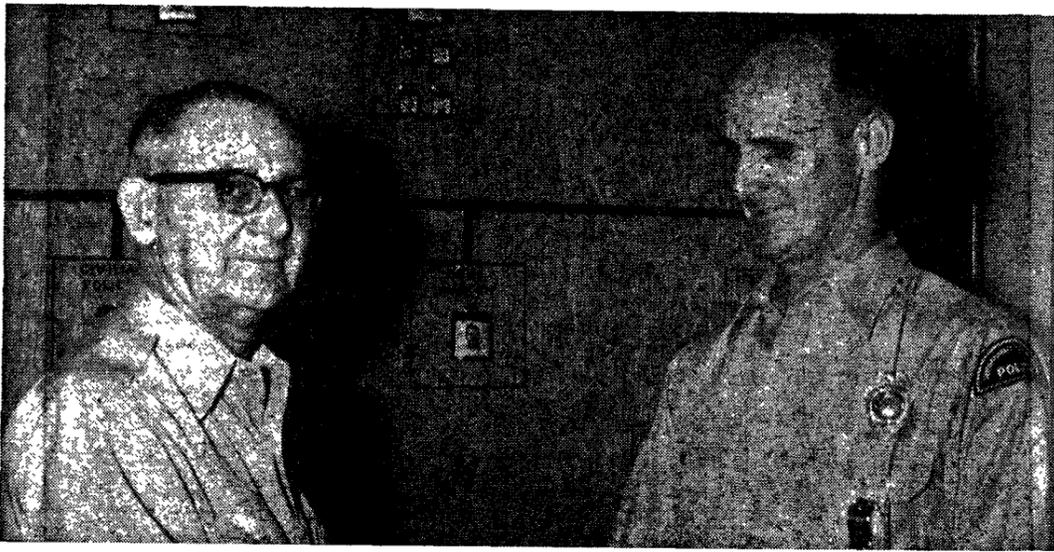


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**SECURITY POLICEMAN OF THE MONTH SELECTED** — Civilian Policeman Aubrey W. Smith (right), who has been a member of the Redstone Arsenal Civilian Police Detachment for the past 19 months, was selected as Security Policeman of the Month for March by a board convened at the Provost Marshal's Office recently. Policeman Smith received a Letter of Commendation signed by Redstone Arsenal Provost Marshal, Lt. Col. Dean H. Jones, from Civilian Police Chief James R. Gelnn (left), at a recent ceremony. Policeman Smith is a resident of Mastin Lake Road, Huntsville, is married, and has two children.

**Births at Post Hospital**

Wanda Sue Earley, 3 lbs., 3 3/4 ozs., May 5, daughter of PFC. and Mrs. Marion F. Earley.  
 Lawrence Thomas Freligh, 5 lbs., 6 1/4 ozs., May 5, son of PFC. and Mrs. Lawrence T. Freligh.  
 Mary Ann Dunkin, 6 lbs., 4 1/2 ozs., May 5, daughter of PFC. and Mrs. Alvin L. Dunkin.  
 Thomas Benjamin Brantly, Jr., 9 lbs., May 7, son of PFC. and Mrs. Thomas B. Brantly.  
 Bruce Thomas, 7 lbs., 9 ozs.,

**FLU VACCINATIONS**

WASHINGTON (ANS) — Influenza vaccine will be administered during October, 1960 to all U.S. Army personnel on active duty. In addition, personnel who enter upon active duty for training for periods in excess of 30 days, will receive the vaccine as soon as practicable after entry.

May 8, son of Lt. Col. and Mrs. Arnold R. Thomas.  
 Dena Joy Bridges, 7 lbs., 1 oz., May 8, daughter of PFC. and Mrs. Dentis E. Bridges.

**HISTORIC SWORDS**

FORT SILL, Okla., (ANS) — Acquisition of 25 historic specimens from one of the largest private collections in America has upped the Sill museum's collection of sabers to some 150. The museum now has a collection of edged weapons spanning nearly 200 years of our country's history and Gillett Griswold, museum director, says he intends to build the collection into the most complete display of artillery sabers in the world.



ARRANGED for comprehensive view on this table is charming Carmen Phillips of MGM whose collection of related numbers add up to 36-22-36. You can make your comparison on the screen of your favorite Army motion picture theater. (Army Photo)



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# University Of Alabama, Huntsville Center

June 10 - Summer Quarter - 1960 - August 25

**MONDAY-WEDNESDAY 5:55-7:55 (1st Period)**

- Accounting 1, Principles of Accounting
- Art 11a, b; 12a, b, Drawing I (Mon. only 6:00-10)
- Art 25a, b; 26a, b, Drawing II (Mon. only 6:00-10)
- Art 23a, 23b, 24a, 24b, Beginning Painting (Wed. only 6:00-10:00)
- Art 37, a & b Beginning Ceramics (Wed. only 6:00-10:00)
- Chemistry 2, General Chemistry (Lab. Thur. 6-10)
- Drawing 32, Engineering Drawing II (6:00-10:00)
- EE 4, Direct Current Circuits (Prob. Ses. 6-9)
- EE 104, Elementary Industrial Electronics
- EE 181, Electromagnetic Fields and Waves
- English 1, English Composition
- English 2, English Composition
- English 128, Milton
- GES 12, Engineering Preview
- History 1, History of Western Civilization
- Mathematics 01, Elementary Algebra
- Mathematics 9, College Algebra
- Mathematics 11, Introductory College Math.
- Mathematics 37, Fundamentals of Mathematics
- Mathematics 49b, Calculus & Analytical Geometry
- Mathematics 98, Differential Equations
- Physics 6c, Technical Physics (Heat, Light and Sound) (Lab. Tuesday 5:00-8:00)
- Physics 85, Intermediate Electricity & Magnetism
- Sociology 1, Introduction to Sociology
- Special Problems in Calculus

**MONDAY-WEDNESDAY 7:55-10:00 (2nd Period)**

- Accounting 3, Accounting Analysis
- Biology 2, General Biology (Lab. Thur. 6:00-10:00)
- Economics 11, Principles of Economics
- English 03, Fundamentals of English
- EE 91, Electrical Machinery (Less Lab.)
- English 1, English Composition
- English 3, Advanced English Composition
- English 192, Chaucer
- I. E. 51, Industrial Organization
- Mathematics 15, Trigonometry
- Mathematics 49a, Calculus & Analytical Geometry
- Mathematics 73, Theory of Equations
- MH 81, Statics
- Political Science 41, American Politics and Parties
- Psychology 7, Psychology of Adjustment

**TUESDAY-THURSDAY 5:55-7:55 (1st Period)**

- Accounting 2, Principles of Accounting
- Business Statistics 1, Mathematics of Finance
- Drawing 31, Engineering Drawing I (6:00-10:00)
- Economics 12, Principles of Economics
- English 1, English Composition
- English 6, English Literature
- French 3, Intermediate French
- German 1, Elementary German
- History 2, History of Western Civilization
- Mathematics 02, Plane Geometry
- ME 1, Mechanisms (Lab. Thurs. 6:00-10:00)
- ME 2, Mechanisms (5:10-7:55)
- ME 106, Heat Transfer
- ME III, Refrigeration & Air Conditioning
- Music 23, Introduction to Music Listening
- Physics 5c, Technical Physics (Mechanics) Lab. Mon. 5:00-8:00
- Political Science 1, Principles of American Gov't.

**TUESDAY-THURSDAY 7:55-10:00 (2nd Period)**

- Accounting 53, Intermediate Accounting
- Art 1, Art Appreciation
- Economics 91, The Development of Ec. Thought, Pt. II
- English 2, English Composition
- English 45, English Classics
- German 4, Intermediate German
- History 22, Development of U. S. since 1865
- Mathematics 01, High School Algebra
- Mathematics 9, College Algebra
- Mathematics 11, Introductory College Math.
- Mathematics 15, Trigonometry
- Mathematics 25, Analytical Geometry & Calculus
- Mathematics 51, Calculus
- Marketing 6, Business Correspondence
- ME 51, Thermodynamics
- ME 102, Thermodynamics
- ME 125, Power Plants
- MH 94, Strength of Materials (Fri. - 7 sessions 5:30 - 7:30)
- Psychology 1, Introduction to Psychology
- Sociology 9, Population and Society

New students must apply for admission and must submit records of high school or college credits WELL IN ADVANCE OF REGISTRATION. Applicants may not register or attend classes until approvals have been received from the Office of Admissions and Records on the main campus. New students expecting to attend the Center during the summer should complete applications and submit their LATEST AVAILABLE TRANSCRIPTS to the Center Registrar at once. Application forms and information on admission are available at the Center Office.

**SPECIAL ANNOUNCEMENTS**

The University, at its Huntsville Center, provides a large variety of courses for the beginning college student as well as the advanced student each quarter.

SCOPE—The scope of credit offerings here is broad. Among the fields of study represented in the Summer schedule are accounting, art, biology, business statistics, ceramics, chemistry, economics, electrical engineering, engineering drawing, English, French, German, industrial engineering, marketing, mechanical engineering, music, physics, political science, psychology, Russian, and sociology. Many adults already holding college degrees take courses here in fields of academic interest which they were unable to explore as undergraduates.

COUNSELING — Persons in the Tennessee Valley area who wish counseling concerning academic programs may receive help from the University Center faculty and staff. New students are urged to come in for counseling well in advance of registration.

TO THE 1960 HIGH SCHOOL GRADUATES—The University of Alabama Center at Huntsville will provide you an opportunity to begin your college work and remain at home. You may go to school either full time or part time. This schedule of classes contains many courses for beginning college students.

Credits earned may be transferred to other schools. The staff of the University Center will be happy to discuss any of your educational problems with you.

**CALENDAR**

- May 30 and June 1 at 6:00 p.m. and June 11 at 3:00 p.m., English Entrance Examinations.
- June 2 at 7:00 p.m. and June 11 at 2:00 p.m., Mathematics Entrance Examinations.
- June 10-11—Regular Registration.
- June 13—Classes Begin.
- June 13—Late registration begins.
- June 23—Last day of registration.
- August 22-25—Final Examinations.
- August 25—Close of Quarter.

The University reserves the right to withdraw any announced class or postpone any class to a later quarter.

All students beginning college English or mathematics must take a placement test before classes begin. The English test will be given May 30 and June 1 at 6:00 p.m. and June 11 at 3:00 p.m. The mathematics test will be given June 2 at 7:00 p.m. and June 11 at 2:00 p.m.

English 45 is for Engineering and Commerce and Business Administration students only.

Students may be encouraged to take ME1 if registration is not sufficient.

Students may be encouraged to take ME 51, if registration is not sufficient.

# The Judge Advocate Advises



## VOTING

Active participation in the election of the President of the United States is incumbent upon all individuals or citizens interested in the security, preservation and growth of the nation.

Congress in The Federal Voting Assistance Act of 1955 (5 U. S. Code, Sections 2171 to 2196) expressed itself as favoring the enablement to vote of every military person and civilian employe of the United States, and their spouses and dependents.

The policy of the Department of the Army, declared in Army Regulations 608-20, is to assist and encourage persons eligible to vote by expediting State absentee balloting procedures to the greatest extent practicable and compatible with military operations.

To promote this policy, all members of the Army are to be thoroughly advised of their rights, privileges and responsibilities as voters. Department of the Army Pamphlet and Poster 21-50 contain 1960 voting information of interest to all voters.

### See Legal Officer

In addition, your Legal Assistance Officers at Redstone Arsenal are available to aid and assist you in the fulfillment of this important responsibility of citizenship.

It is also appropriate to treat from time to time some of the issues, having legal connotation or significance, which arise in the course of the important business of choosing the President and Vice President of the United States.

One of these is the matter of a religious test sought to be imposed upon candidates for office. Such effort is really quite surprising when it is remembered that in the over 160 years of American history men of many faiths have occupied the White House.

### Faith of Presidents

In the lifetimes of most of us that place has been held by William Howard Taft, a Unitarian; Woodrow Wilson, a Presbyterian; Warren Harding, a Baptist; Calvin Coolidge, a Congregationalist;

Herbert Hoover, a Quaker; Franklin Roosevelt, an Episcopalian; Harry Truman, a Baptist; and Dwight Eisenhower, a Presbyterian.

The lesson of history, exemplified by the facts recited, argues against the postulation of any religious criteria in the selection of our Presidents.

This is equally true with respect to other offices in the Federal Government, such as membership in the Senate and House of Representatives and on the Supreme Court of the United States. It is well known that men of all faiths and creeds have occupied high power-laden offices in the executive, judicial and legislative branches of our State and Federal Governments. Whether Catholic, Protestant or Jew, none of the men, who occupied these positions, has used his office or power to propagate his creed.

The question arises as to whether the irrelevancy of the religious faith of an officer of a state or the national government is in consonance with declared American law? The short answer is that it is.

### Constitution's Closing Clause

The last and closing clause of the Constitution of the United States, which was inserted when the whole frame of Government with all its defined powers had been adopted by the Constitutional Convention, provides at Article VI:

"The Senators and Representatives before mentioned, and the Members of the several State Legislatures, and all executive and judicial Officers, both of the United States and of the several States, shall be bound by Oath or Affirmation, to support this Constitution; but no religious Test shall ever be required as a Qualification to any office or public Trust under the United States."

It is worthy of note that that part of the supreme law of the land contained in Article VI of the Constitution defines the rule, not

only for the United States, but for each and all of the states, and does this forever. The intent to proscribe a religious test is indicated further by the provision for an affirmation on the individual's conscience equally with the taking of an oath on a Bible or before God.

The clear meaning of this fundamental provision of the Constitution of the United States is that the religious faith of a candidate for office or public trust in the governments of the United States and the several states is not subject to test.

### First Amendment

This view is consistent also with the First Amendment to the Constitution which announces that "Congress shall make no law respecting the establishment of religion or prohibiting the free exercise thereof."

It is well for us to bear these principles in mind during this election year. It is important to the maintenance of our democracy within a republic and our way of life that, in the exercise of the duties and responsibilities of citi-

zenry in America, we make every issues of the campaign consistent effort to deal with and decide the with this law.



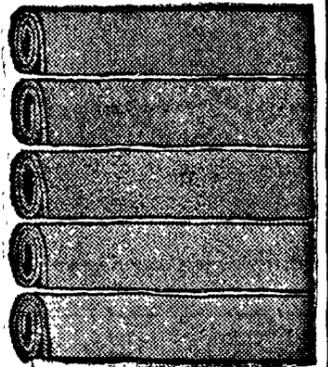
**OGMS AWARDED FOR SAFETY**—Bill Cary, Safety Officer, OGMS, proudly displays the Redstone safety plaque, presented to this organization only a few minutes earlier by Col. Owen T. McCloskey, Commander, Redstone Arsenal, for maintaining the lowest military accident cost per capita among military organizations, OGMS, Redstone Arsenal Troop Command, during first quarter calendar year 60. Looking on, right to left are: Col. Charles Eifler, Commandant, OGMS, who accepted the award; Maj. C. E. Williams, Executive Officer, School Troop Command and Maj. R. H. Bassett, Commander, Unit Training Command. In making the award, Col. McCloskey stated "This achievement highly compliments the personal interest and effort of Col. Eifler, and personnel under his supervision directed toward the reduction and control of accidents and further insures the success of the post wide safety program."

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