

The Redstone Rocket

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REDSTONE ARSENAL, HUNTSVILLE, ALABAMA

APRIL 2, 1958

COL. WOESTENBURG DEPUTY

Col. O'Keefe Named Commander For Post



COL. KEITH T. O'KEEFE

Col. Keith T. O'Keefe has been named Redstone Arsenal Commander. The announcement was made this week by Maj. Gen. J. B. Medaris, Commanding General of the Army Ordnance Missile Command.

The new post commander will be responsible for providing all supporting services for the entire installation, which includes Command Headquarters, the Army Rocket and Guided Missile Agency, the Army Ballistic Missile Agency, and the Ordnance Guided Missile School.

Among Redstone Arsenal's major duties are: Maintaining roads and buildings; furnishing protective services such as security, fire and safety; operating medical facilities; providing administrative services in such areas as finance and printing; and supporting military units assigned to all segments of the installation.

Col. O'Keefe accomplished many of these same assignments in his former position as Deputy Post Commander under Maj. Gen. H. N. Toftoy. He has held that position since August, 1956.

Col. O'Keefe's deputy will be Col. John M. Woestenburg, who was also his assistant on the former assignment.

Col. O'Keefe holds engineering degrees from the City College of New York and Brooklyn Polytechnic Institute. He is also a 1954 graduate of the Army War College. He came to Redstone from Lordstown Ordnance Depot, Warren, Ohio, where he was commanding officer.

A veteran of 17 years service in the Army, Col. O'Keefe has (See COL. O'KEEFE on Page 12)



DR. GILFORD G. QUARLES



ROBERT W. CUTHILL

QUARLES, CUTHILL GIVEN KEY POSTS

Named to Scientific, Engineering Positions

Dr. Gilford G. Quarles and Robert Cuthill have been named to key positions in the new Army Ordnance Missile Command, it was announced by Maj. Gen. J. B. Medaris, Commanding General.

Dr. Quarles is the Chief Scientist of the Command. He formerly was Scientific and Technical Consultant to the Commanding General of the Army Ballistic Missile Agency.

Cuthill is the Command's Chief Engineer for Production and Engineering Services. He was Deputy Chief of the ABMA Industrial Operations Division.

Both men will act as counsellors to the Commanding General in their respective fields.

The Army Ordnance Missile (See QUARLES on Page 12)

COL. ZIERDT CHIEF OF STAFF

6 Officers Named to Fill Key Places in New OMC

Selection of six officers to fill key positions in the new U. S. Army Ordnance Missile Command has been announced by Maj. Gen. J. B. Medaris, the Commanding General.

Col. John G. Zierdt will be Chief of Staff. He has been serving as Chief, Control Office, Army Ballistic Missile Agency.

Col. Charles G. Patterson will be Assistant Chief of Staff, Military Applications and Training. He has been Chief, Military Requirements and Applications Staff of the Missile Agency.

Col. Clifton E. Nooncaster will be Assistant Chief of Staff, Support Operations. He has been the Agency's Headquarters Commandant.

Col. William J. Durrenberger will be Comptroller. He has been Chief, ABMA Financial Management Office.

Col. Duncan Hallock will be Chief, Engineer Office. He held the same position in the Missile Agency.

Col. Thomas J. Seigler will be Chief, Signal Office. He held the same position in the Missile Agency.

These officers have already assumed their new duties. Activation of the Command took place March 31.

Col. Zierdt is the son of Col. W. Henry Zierdt (Retired) of Grantsville, Pa. He was graduated from the U. S. Military Academy and the Command and General Staff College. He also studied at Trinity College in Hartford, Conn., and Massachusetts Institute of Technology.

During World War II he served as an Ordnance staff officer in Panama and the European Theater, becoming executive officer of Headquarters, U. S. Strategic Bombing Survey in 1945.

Later he commanded Milan Artillery (See 6 OFFICERS on Page 2)



COL. JOHN G. ZIERDT



COL. CHARLES G. PATTERSON



COL. DUNCAN HALLOCK



COL. CLIFTON E. NOONCASTER



COL. THOMAS J. SEIGLER



COL. WM. J. DURRENBERGER

Gen. Toftoy in Fla. on Convalescent Leave

Maj. Gen. H. N. Toftoy, deputy commander of the Ordnance Missile Command, left last week for Florida where he was to spend approximately three weeks on convalescent leave on orders from physicians at Walter Reed General Hospital, Washington, D. C. Gen. Toftoy recently returned from Walter Reed where he had been a patient for several weeks. He was treated for an attack of virus pneumonia, and also underwent a complete medical check-up.

OGMS Starts Training In Lacrosse Missile

(Photo Inside)

In line with the Army's increasing emphasis on the "missile age," the U. S. Army Ordnance Guided Missile School has started residence training in a new missile system — the Lacrosse — a solid propellant, surface-to-surface missile designed for close support of front-line troops.

Thirty-two students, including Army personnel, three Marines, four Canadians, and civilians from military depots, are enrolled in three Lacrosse classes — maintenance supervision, electro-mechanical system repair, and guidance system repair. The Canadians represent one of nine NATO countries, in addition to the U. S. with (See LACROSSE on Page 2)



PROVOST MARSHAL — Lt. Col. Dean H. Jones has recently been appointed Provost Marshall at Redstone Arsenal. The colonel recently returned from Japan where he was chief of the Provost Marshal Liaison Division in Tokyo. He has been in the Army for 16 years and has served from coast to coast in the United States as well as in Europe and Korea. He studied at Arkansas State Teacher's College, and Arkansas A. and M. College.



TROOP COMMANDER — Maj. Jesse A. Garner has recently been named Troop Commander for the Special Troops at the Army Rocket and Guided Missile Agency. Previously, he had been assigned to the Redstone Arsenal Inspector General Office and later to the office of the RSA deputy post commander. Maj. Garner had been deputy commander of Special Troops when he first came to the arsenal in May, 1956.

WORKING GROUP ORGANIZING OMC

Setting Up HQ, Lay Plans for Command

Formation of a working group to set up the Headquarters of the new U. S. Army Ordnance Missile Command and complete organizational planning has been announced by Maj. Gen. J. B. Medaris, the Commanding General. The Missile Command, uniting all Army Ordnance missile activities, was announced last week by Army Secretary Wilbur Brucker. The Command's activation was effective March 31.

Heading the working group is Col. John G. Zierdt, Chief of the Control Office, Army Ballistic Missile Agency. Col. Zierdt's group has been meeting for the (See WORKING on Page 12)

The Redstone Rocket

The Redstone Rocket is a privately owned newspaper published every Wednesday by Jack W. Hollibaugh, Huntsville, Alabama, with exclusive regard for the reader interests of personnel at Army Ballistic Missile Agency, Redstone Arsenal and Ordnance Guided Missile School in accordance with an agreement between the publisher and the Public Information Office, Redstone Arsenal, Huntsville, Alabama.

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6 OFFICERS

(Continued From Page 1)

senal, Milan, Tenn., was executive officer of the Field Director of Ammunition Plants and the Ordnance Ammunition Center, and then moved to the Office, Chief of Ordnance where he became chief of the Ammunition Branch, Industrial Division.

He attended the Army War College at Carlisle Barracks, Pa., before joining the Missile Agency in 1956.

His decorations include the American Campaign Medal, the European-African - Middle East Campaign Medal, Bronze Star, Commendation Ribbon, World War II Victory Medal, Army of Occupation Medal for Germany, American Defense Medal, and National Defense Medal.

Col. Patterson, son of Mrs C. L. Patterson of 2847 Plunkett Ave., Schenectady, N. Y., is a graduate of the U. S. Military Academy. He enlisted in the 26th Infantry in 1927, after serving as general bookkeeper of the Interstate Trust Company, New York City. He was appointed to the Military Academy from the Regular Army.

Col Patterson was also graduated from the Coast Artillery School, the Armed Forces Staff College and the National War College. He served as chief, Anti-Aircraft Section, First Army in the European Theater. He has served several overseas tours. He wears the Legion of Merit, Bronze Star Medal, Army Commendation Ribbon, French Legion of Honor, Croix de Guerre with two palms and the Luxemburg Couronne de Chene.

Col. Nooncaster is the son of Mr. and Mrs. J. W. Nooncaster of 502 E. 6th St., LaMesa, Texas. He attended Southeastern State College, Okla., Cameron A. & M. College from which he was graduated, and the Armed Forces Staff College.

He entered military service in 1933. In World War II he served with Headquarters, Sixth Army in the Philippines.

He later served at Headquarters, Army Ground Forces and was executive officer for Ordnance

in the European Command from 1950 until 1952. He spent two years in the Office, Chief of Ordnance, then commanded Joliet Arsenal until assigned to the Missile Agency in the Fall of 1955.

His decorations include the Bronze Star, Philippines Liberation Medal, Presidential Unit Citation, Philippines Presidential Unit Citation, and three campaign stars.

Col. Durrenberger is the son of Mr. and Mrs. J. G. Durrenberger of 115 Kidder St., Little Falls, Minn. He is a graduate of the University of Maryland and Syracuse University where he received a master's degree in business administration.

He was commissioned in the Army in June, 1939 and entered on active duty in October, 1940. He served in the European Theater in World War II and at the U. S. Embassy in London following the War. From 1947 to 1951 he was assigned to the Office, Chief of Ordnance.

He came to Redstone Arsenal in 1951 as director of projects and later became assistant director of the Ordnance Missile Laboratories. He returned to the Office, Chief of Ordnance as executive officer in the Ordnance Comptroller Office, leaving this post to join the Missile Agency, on the day of its activation.

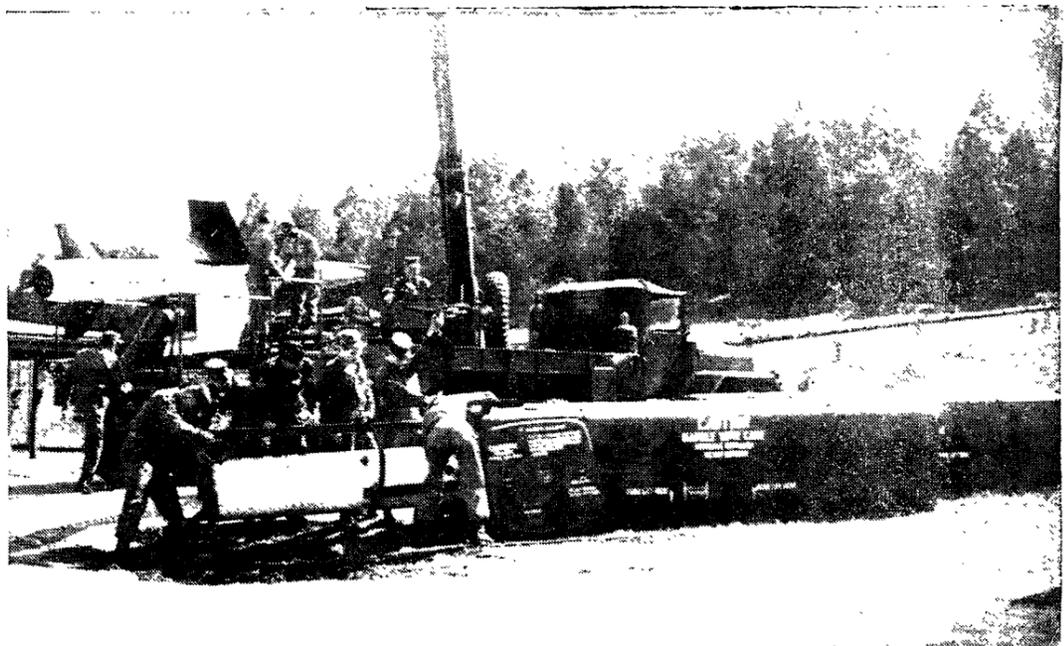
Col. Hallock is the son of Mrs. R. C. H. Hallock of 7561 York Drive, St. Louis, Mo. He attended St. Louis schools and was graduated from the U. S. Military Academy. He also received a master's degree in civil engineering from Cornell University and is a graduate of the Army War College.

His overseas tours included the European and Pacific Theaters. He wears the Bronze Star, Army Commendation Ribbon, American Defense, American, European and Pacific Theater Ribbons, Army of Occupation, Philippines Liberation and Philippines Independence Ribbons. He joined ABMA April 23, 1956 after a tour as Engineer, Third U. S. Army.

Col. Seigler is a native of Americus, Ga., and the son of T. J. Seigler of Savannah, Ga. He is a graduate of Savannah High School and Georgia Tech, receiving his commission after completing ROTC training. In World War II he served with the 71st Infantry as Division Signal Officer.

He later served as Signal Officer for the Nuremberg War Crimes Trials. After a tour in the U. S., he was Signal Advisor to the Iranian Army, became deputy chief of Plans and Operations, Office of the Chief Signal Officer in the Pentagon and was graduated from the Army War College. He was deputy chief of staff, Sixth US Army, before joining ABMA in March, 1956.

He wears the Legion of Merit with Oak Leaf Cluster, the Army



LEARNING THE LACROSSE—These Army specialists are the first to be trained in the Lacrosse Missile system at OGMS. Three classes enrolling 32 students started March 3. In photo, the missile is being removed from the container in which it is shipped. It is assembled and placed on a launcher similar to the one seen at left rear.

LACROSSE

(Continued From Page 1)

students in training at the Missile School.

Although this is the official beginning of Lacrosse training at OGMS, the missile system itself is not new to the School. The 572nd Ordnance Detachment was activated and trained at OGMS to serve as a pilot unit while experiments are being carried out to determine the most effective instructional program to follow, as well as how to solve the problems which a Lacrosse direct support unit will meet in the field.

Last December, the 572nd Ordnance Detachment was transferred to Fort Bliss, Texas, where it is now responsible to the Continental Army Command. The same month, the Lacrosse Branch was transferred from the OGMS Research and Curriculum Division to the Surface-to-Surface Missile Division.

Capt. Sherman F. Bunn heads the Lacrosse Branch of OGMS. By mid-year of 1958, he hopes to have his branch moved into its new class and laboratory building, which is a part of the \$5,250,000 expansion program currently underway at the School.

The Lacrosse missile was designed and developed under Army Ordnance contract by the Cornell Aeronautical Laboratory, Inc., of Buffalo, N.Y. The Glenn L. Martin Co. participated with Cornell in bringing the Lacrosse to final development from a laboratory device to a producible weapon.

A light-weight launcher, just recently developed and soon to arrive at OGMS, will be used in addition to a heavier launcher which is mounted on a standard Army truck.

The Lacrosse joins the Nike-Ajax, Nike-Hercules, Corporal, and Redstone in the list of missile systems taught at OGMS, the Army's only service school devoted exclusively to guided missile training.

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The week of April 14th has been designated as "Clean-up Week." All personnel are requested by the Post Engineer to aid in this clean-up program.

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40th Group's Honor NCO Has Seen Unit Switch From Mules to Missiles

The conversion of an Army unit from mules to missiles has been witnessed by the 40th Field Artillery Missile Group's "NCO of the Month." He is SFC John Q. McMullen, who, until his assignment to the 40th Group, was a member of the 4th Field Pack, an artillery unit utilizing mules for transportation at Fort Carson, Colorado.

The son of Mr. and Mrs. Jesse McMullen, Mt. Union, Pennsylvania, SFC McMullen was awarded top honors as NCO of the Month here last week. Until recently, he was assigned as wire chief of the Communications Sec-

tion of the 40th Group. He has since assumed duties as motor sergeant of the Headquarters Battery of the Group, charged with the maintenance and upkeep of the Group's large stable of motor vehicles.

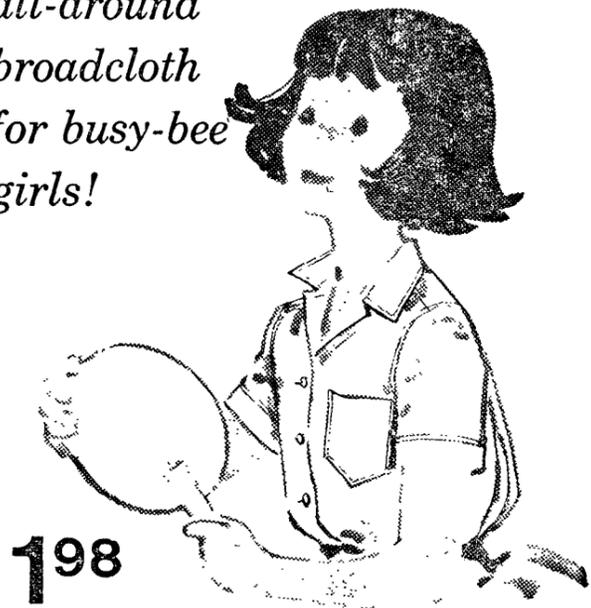
Entering the Army in 1948, SFC McMullen has completed three tours of overseas duty; two in Europe and one in Korea during 1955-1956. While in Germany, he served under Col. Robert C. Gildart, his present commander in the 40th Group, when both were assigned to the 74th Field Artillery Battalion there. He also attended the Military Intelligence School while in Germany.

SFC McMullen is married and resides in Huntsville with his wife, Marilyn, daughter, Carla, 3. His wife is a former resident of Colorado.

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Here's Fact Sheet on Army's 'Explorer III'

The U.S. Army's second scientific earth satellite, "Explorer III," was launched by direction of the Department of Defense as a part of America's contribution to the International Geophysical Year research program, which is sponsored in this country by the National Academy of Sciences.

Following are measurements of Explorer III:

Weight of satellite proper—18.33 pounds

Weight of final stage—12.67 pounds (after burnout)

Length of satellite proper—34.0 inches

Length of final stage motor—46 inches

Diameter of satellite and final stage—6 inches

Total weight orbiting—31.0 pounds

Total length of orbiting portion—80 inches.

Launching of the satellite within the Army was a joint project of the Army Ballistic Missile Agency and the Jet Propulsion Laboratory. The satellite, like Explorer I, was launched by a modified Jupiter-C missile. This vehicle was designed by the Army for use in nose cone re-entry tests conducted in connection with the Jupiter IRBM development program. It is basically the Army's highly successful Redstone ballistic missile, which pre-dated the ABMA organization and was designed by the von Braun team under direction of Maj. Gen. H. N. Toftoy, a top missile pioneer.

Explorer III is gathering and transmitting three types of information: temperature, cosmic dust erosion, and the intensity of cosmic radiation. The main part of the instrument package is the cosmic ray experiment, which was designed by Dr. James A. Van Allen of the State University of Iowa.

There were essentially no differences in the carrier vehicle or the launching methods of the satellites. There were, however, several significant changes in the

instrumentation of the new satellite.

A major change in the satellite itself was the addition of a miniature tape recorder, developed by the State University of Iowa. This device is collecting and "freezing" on tape the data on cosmic radiation encountered during the total orbit. This information is played back upon a signal given from a ground station. The tape is then automatically erased and reset.

Scientists consider information gained from this memory system a marked improvement over that of Explorer I. The first satellite dispatched data continuously; it was received only in areas of the orbital band that had ground stations. Many "blanks" occur in Explorer I's record, particularly when the satellite was over large bodies of water. The new satellite, however, is sending out cosmic radiation information representative of the total orbit. Thus, there is being conducted, for the first time, a comprehensive survey of total cosmic ray intensity above the earth with respect to both time and position.

The addition of the tape recorder necessitated a change in the operation of the radio transmitters. In Explorer I, both transmitters operated continuously. Explorer III's lower-power transmitter is likewise functioning continuously. But the other transmitter is passing on the data gathered by the tape recorder, and only operates a few seconds during each orbit—whenever the playback signal is given from a ground station. A small radio receiver was added to receive the playback command.

The higher-power AM transmitter radiates approximately 60 milliwatts of power and broadcasts at a frequency of 108.03 megacycles. It is transmitting only cosmic radiation information.

The low-power FM beacon, with 10 milliwatts of power on a frequency of 108.00 megacycles, is also transmitting cosmic ray data on one channel. Its other three channels are devoted to internal and external temperatures, and micrometeorite erosion.

It is expected that the lifetime of Explorer III's battery-powered transmitters will be about two months.

Minor changes were made in the temperature and micrometeorite experiments. The number of temperature sensors was reduced from four to two, one each giving external and internal readings. In the measurement of meteoric particles, an impact microphone carried in Explorer I was eli-

minated in the second flight. However, Explorer III, like the earlier one, carries an erosion gage on the exterior of the instrument section.

The orbit of Explorer III was expected to be similar to that of the first satellite. Perigee and apogee altitudes of Explorer I were 219 and 1,587 miles respectively. Explorer III altitudes could be altered by final velocity and attitude variations. Orbital period was forecast as about 110 minutes.

The new satellite was launched at a 35 degree inclination to the equator, to orbit approximately between the 35th latitudes North and South.

Some facts on the carrier vehicle and the launching method:

The first stage of the modified Jupiter-C is a liquid propellant missile. The entire length of the composite missile used for launching Explorer III was 823 inches. The main stage is 673 inches long, and 70 inches in diameter. The high-speed assembly which was launched from the first stage, plus the final stage and orbiting satellite, was 150 inches in length.

During the latter stages of the ascent, the main power plant was expended. It separated and fell back to the earth. The upper stages shortly afterward reached the apex of the arc. Just prior to the time when the vehicle attained its maximum eight, the second stage was fired.

The nose section of the main stage missile, then completely detached from the upper stages, continued its normal trajectory to the earth's surface, just as it would if it were a military weapon carrying a warhead.

The first stage of the missile carried the payload to its perigee distance from the earth. Other stages of the missile increased the satellite's speed to that necessary for orbiting, a minimum of 18,000 miles per hour. The upper stages were spin-stabilized, in much the manner of a rifle bullet. This was done by electric

motors mounted within the nose section of the main stage.

The upper stages were solid propellant systems. The final stage motor and the satellite were not separated. They are orbiting together. They have a total length of approximately 80 inches, and weigh 31.0 pounds.

READ THE WANTADS

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COMPARISON OF THE ARMY SATELLITES

DIMENSION	EXPLORER I	EXPLORER III
WEIGHT		
Shell	30.80 pounds	31.00 pounds
Instrumentation	7.50 pounds	7.50 pounds
Fin. Rocket (empty)	10.63 pounds	10.83 pounds
LENGTH		
DIAMETER	12.67 pounds	12.67 pounds
	80 inches	80 inches
	6 inches	6 inches
HIGH-POWER TRANSMITTER		
Power	50 to 60 milliwatts	50 to 60 milliwatts
Frequency	108.03 megacycles	108.00 megacycles
Life Expectancy	2 weeks	2 months
LOW-POWER TRANSMITTER		
Power	10 milliwatts	10 milliwatts
Frequency	108.00 megacycles	108.03 megacycles
Life Expectancy	2 months	2 months

MEASUREMENTS

The two transmitters in Explorer I telemetered measurements of cosmic ray intensity, two measurements of micrometeorite impact (an erosion grid and an impact microphone), and inner and skin temperatures of the satellite. Explorer also had a nose-cone temperature sensor to measure the aerodynamic heating of the nose cone during the launch phase. This information was transmitted continuously by both transmitters.

In Explorer III, only the low-power transmitter sends information continuously on external and internal temperatures, one measurement of micrometeorites (the spring impact microphone has been eliminated), and cosmic ray counts. The high-power transmitter is equipped with a tape recorder that is interrogated by a command radio signal from the ground as it passes over the Minitrack receiving net. The high-power transmitter sends only information on cosmic rays.

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DIFFERENT ANTENNA FOR HIGH-POWER RADIO IN EXPLORER III IS USED

PASADENA, Calif.—Dr. William H. Pickering, Director of the California Institute of Technology Jet Propulsion Laboratory, and Dr. J. E. Froehlich, JPL satellite Project Director have revealed that Explorer III has a different antenna for its high-power radio than that used in Explorers I and II.

The two earlier Army satellites, launched jointly by the Army Ballistic Missile Agency, and JPL, used a turnstile antenna which consisted of four whip-like wires, each 22.5 inches long, which extended from a fiber glass ring in the mid-section of the satellite to serve as antenna for the high-power transmitter in the satellite.

The story of the decision to eliminate this turnstile antenna and replace it with a dipole antenna—in which the satellite itself is the antenna—is an example of how Explorer I is steadily contributing to our knowledge of space conditions, or lack of conditions. It also provides an insight into some of the complexities of the satellite project.

Explorer I was placed on orbit rotating on its long axis at more than 700 revolutions per minute. This was done principally to insure that it would arrive on orbit in a flight attitude of such a nature as to make predictable the time the instruments would spend in the sun and shade portions of the earth.

Because it is in an elliptical orbit in space outside the atmosphere of the earth, Explorer I moves in a plane that is in relation to space and not in relation to the surface of the earth.

If you imagine that Explorer I had its bullet-shaped nose pointed at a star at the moment it was placed on orbit, then you can follow its orbital position around the earth by imagining that it always continues to point at that same star.

Thus, when it is one-quarter of the way around the earth, Explorer I has its tail pointed straight down to the earth's surface; one-half way around it is horizontal to the earth but speeding tail first, three-quarters of

the way around it points down at the earth and so on—always pointing at the same star.

This condition made it possible to predict with great accuracy the position of the satellite when it is on the sun side of the earth, absorbing radiant heat from the sun.

For the welfare of the instruments, it is important to know and control the movement of the satellite when it is broadside to the sun since it is during this period that the metal absorbs heat which it radiates to space when it moves around to the shade side of the earth.

Too much exposure to the radiant heat of the sun, for example, would perhaps result in the melting of the electroaic components.

Conversely, if the flight attitude were such that the instrument compartment received little or no heat from the sun, the instruments might radiate heat into space on the dark side of the earth to such an extent that they might freeze.

If the instruments were to melt from too much heat, of course, the voice of the satellite would be irrevocably silenced, but if the instruments were to freeze, they ultimately might thaw out and start operating again as the satellite changed its position in relation to the earth and as the earth moved around the sun.

This heat-cold danger to the instruments was resolved by JPL scientists in three ways: by the selection of the time of day at which the launch was made; by coating the instrument compartment with aluminum oxide stripes to keep interior temperatures within a reasonable range; and by the fixed plane of the satellite in orbit.

The time of day of the launch—set by Dr. Froehlich and Dr. Albert R. Hibbs—is important in these calculations because it determines the initial relation of the satellite orbit to the sun-shade time factor. As the satellite processes around the earth, however, under the influence of the equatorial bulge, and as the earth moves around the sun, the amount of time the satellite spends in the sun and in the shade is changed.

On the first successful launch of a U.S. scientific earth satellite by JPL and ABMA the night of January 31, the time was picked to insure that the satellite would initially encounter sun-shade ratios favorable to immediate radio transmission.

The launch of Explorer II March 5 and the latest launch were changed to different times in order to obtain different sun-shade ratios so that more data could be added to the bales of data already obtained from Explorer I.

The decision to eliminate the turnstile antenna in favor of the dipole antenna is in turn related to this problem and stems from observations made of Explorer I after it was in orbit several weeks.

In tracking and receiving telemetry from Explorer I, it was found that the satellite flight attitude was affected in such a way by the protruding antenna as to cause the satellite to slowly



CAPT. WARREN C. YOST, the first Air Force Officer to be integrated as a Regular Air Force officer in the 864th Strategic Missile Squadron (IRBM-Jupiter), is shown (left) as Maj. Gen. J. B. Medaris, recently named to command the Ordnance Missile Command, administers the oath of office. Col. William C. Erlenbusch, commander of the newly activated Squadron in training at the Army Ballistic Missile Agency, (center) looks on. Yost, who is squadron personnel officer, is also the first Air Force officer to be sworn in by Gen. Medaris under the integration program.

revolve in a propellor-like fashion in its orbit.

Small motions or wiggles in the antenna wires apparently were transmitted to the body of the satellite by friction, causing a damping effort which affected the satellite by starting a slow oscillation around its short axis. This oscillation gradually took on the form of a propellor-like twist that occurred in a seven-second cycle.

If it could be viewed from a point in space as it is on orbit, the satellite would be seen as a slowly revolving propellor as it speeds along in its orbit at 18,000 miles an hour velocity.

Although this turning of the satellite on its short axis is not expected to adversely affect its life expectancy—estimated at up to 10 years—it does influence such things as the quality of the radio transmission and the amount of time the instrumentation is exposed to heat from the sun.

The propellor-like motion of the satellite was first noticed when ground radio stations observed a fluctuation in the signal strength from both the high power and low power transmitters in Explorer I.

This was caused as the position of the antenna in relation to

the earth was changed as the satellite went through its slow oscillation.

As the ends of the satellite were pointed toward the earth, the signal faded, but returned to strength as the oscillation brought the antenna back to a more favorable transmission position in relation to the earth. This occurred in a seven-second cycle.

In order to eliminate this, it was decided to abandon the turnstile antenna and substitute the dipole antenna for the high-power transmitter in Explorer III. This system is achieved by using the satellite itself as an antenna. A fiber glass ring in the mid section of the satellite serves as an insulator to divide the satellite in half so that each half is one pole of the antenna.

The same gap also serves as the antenna for the radio receiver in the satellite which accepts the coded ground signal to activate the magnetic tape recorder and the high-power transmitter.

A similar dipole antenna in the forward half of the satellite is used to provide the antenna for the low-power transmitter, which transmits continuously on three pieces of information: temperature, cosmic ray counts, and micrometeorite counts.

The high-power transmitter is

contained in an encapsulated package that also holds the magnetic tape recorder. Cosmic ray intensities and incidences are recorded on the memory unit of the tape during the orbit flight around the earth.

Then, as the satellite swings over the Minitrack network along the 75th meridian in South and North America, a coded command radio signal from the ground hits the radio receiver in the satellite.

This receiver starts the magnetic tape recorder over the playback head and at the same time switches on the high-power transmitter, so that in five seconds the two hours or more of information collected on the tape is sent to the ground stations by the high-power transmitter.

"His accomplishments in life were staggering," eulogized the preacher while conducting last rites for the town drunk.

He was telling his child a bedtime story and it went: "Fuzzy wuzzy was a bear, Fuzzy wuzzy had no hair. Fuzzy wuzzy wasn't fuzzy, wuz he?" About that time the kid yelled out: "Hey, Ma, the old man's flipped again."

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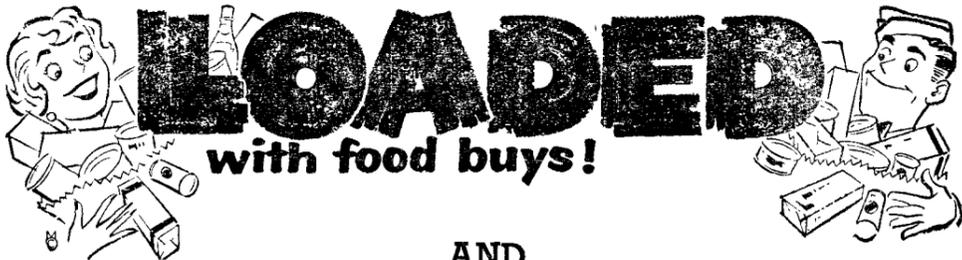
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NINE SPECIALISTS PROMOTED AT ARGMA—A ceremony was held in the office of the RSA deputy post commander recently promoting nine specialists third class to specialists second class. Among those attending the ceremony were Capt. John P. Dabralavskas (extreme left), commander, Headquarters and Headquarters Detachment, and Capt. John V. Yelverton (second from right), executive officer for Special Troops. Those promoted were (left to right, front row) George G. Robertson, Willard C. Gee, James H. Lang, Jr., and John J. Giovanni. In the back row (left to right) are: Edwin R. Bledsoe, Don D. Gibbs, Robert M. Menke, Richard W. Reichhardt, and James T. Newby.

ARPA Programs Announced

ABMA Gets Go-ahead on 'Lunar Probes'

WASHINGTON, D. C. — Secretary of Defense McElroy announced last week that, with the approval of the President, the Advanced Research Projects Agency of the Department of Defense will proceed with several programs for launching a number of small unmanned space vehicles. Roy W. Johnson, Director of ARPA, is issuing instructions to Agencies of the three military Services to undertake these programs for ARPA.

The programs authorized include both scientific earth satellites and efforts to determine our capability of exploring space in the vicinity of the Moon, to obtain useful data concerning the Moon, and provide a close look at the Moon. In technical terms these programs are called "Lunar Probes."

Authority to undertake one, and possibly two, lunar Probes was given the Army Ballistic Missile Agency. ABMA was also authorized to launch two, and possibly three earth satellites. Modified Jupiter-C rockets will be used in these projects.

A program calling for three lunar probes was assigned to the

Air Force Ballistic Missile Division, ARDC, Los Angeles, Calif. BMD will use a Thor-Vanguard system with a third stage to be developed.

Meanwhile, the Naval Ordnance Test Station at Inyoken, Calif., was ordered to develop a mechanical ground scanning system for use when available in Lunar

Probes.

An initial allocation of some 8 million dollars to begin work on these projects has already been made by ARPA to the agencies concerned.

"We would prefer to announce these programs when we are sure of success rather than merely announcing that the work has been authorized," Johnson said.

"However, public interest in knowing more about the country's programs in space exploration is so high that it was decided to release this information and at the same time advise the public that it is impossible to put a time-table on successful accomplishments of these efforts."

Johnson said neither he nor other officials of the Department of Defense would speculate on when the first successful lunar probe would be achieved, nor would he give additional information on instrumentation of the probes themselves.

Dr. Hubert F. York, chief scientist of ARPA, explained that this work is highly experimental. "Many test rocket launchings will probably be required before a probe is successfully placed in the vicinity of the moon," he said. "During the past several months much ground work has been done on these projects. Scientists in these three military agencies thus are not starting from scratch."

Dr. York, also a member of the president's scientific advisory committee headed by Dr. James R. Killian, said that these programs will be coordinated with the National Advisory Committee for Aeronautics, the National Academy of Sciences, and the National Science Foundation.

Happy thought for the day: If you were rich you couldn't eat any more and would get just as tired.

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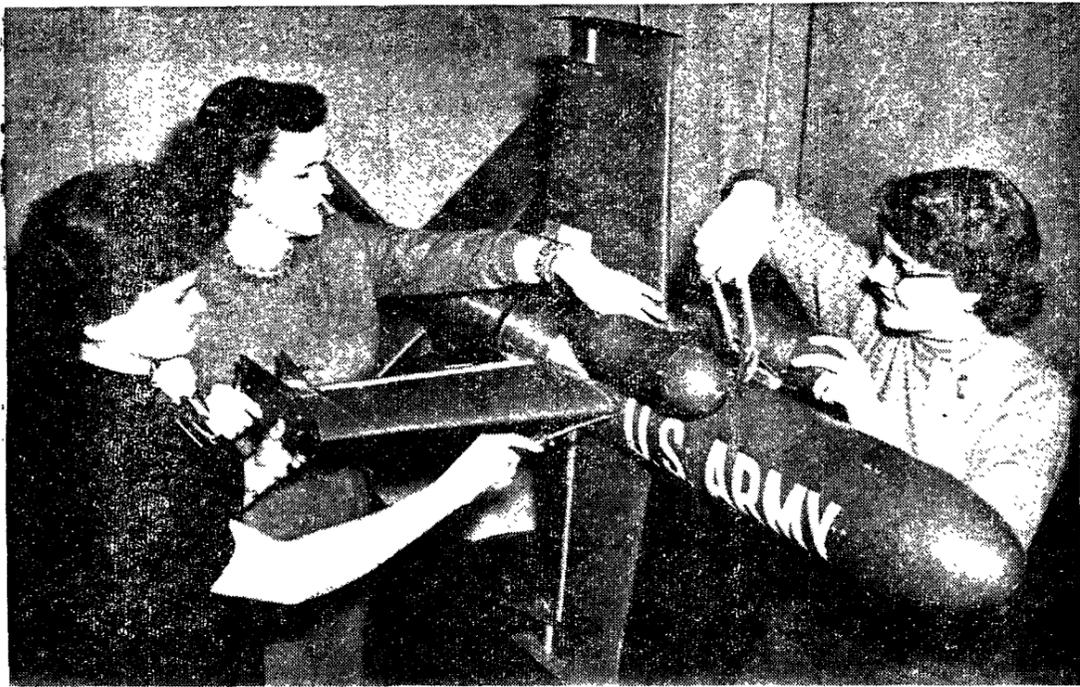
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MISSES PUT A MISSILE TOGETHER—Wielding a pair of pliers, a screwdriver, and "woman's intuition," three determined young ladies—all secretaries at the Army Rocket and Guided Missile Agency—show the men folks they're not the only ones who can assemble guided missiles. Disdaining even to read the instructions, the girls (L. to R., Miss Nell Taber, Mrs. Mamie Fisher, and Miss Betty Romaine) put this Dart anti-tank missile together "on a dare" when the weapon recently arrived—in pieces—at their Industrial Division office from the production contractor, Curtiss-Wright Corp. of Utica, Mich., for familiarization and evaluation study by ARGMA engineers who had technical supervision of the project's development. The admiring engineers (all males) viewed their secretaries' feat as "proof positive" of the Dart's simplicity—a design characteristic much desired by the Army for quick and simple use of the weapon in the field.

Industrial Security Society Official to Address Local Group

Paul Hansen, first president of the American Society for Industrial Security, will be the featured guest at the organizational meeting of the North Alabama Chapter tonight at the Russell Er-

skine Ballroom. The group will start convening at 6 p.m. Dinner is at 7 p.m. and the discussion period at 8 p.m. The ASIS was organized to help standardize security measures in government and industry and to exchange solutions to problems that are common to both. It is now nationally recognized as a professional society for people in intelligence and security work.

Firemen Are Praised For Work in Control Of Blaze at Lab

Fire Marshall Gerald McNeil of Redstone Arsenal has high praise for the action of Redstone firemen in controlling a recent fire at Rohm and Haas.

"The men of Fire Station 1 did an excellent job in quickly confining the fire to its source. The minor loss could have been much

greater had it not been for their work." The fire-fighting crew was under command of Assistant Fire Chief John M. Cobb.

The fire to which McNeil referred resulted from an explosion in a Rohm and Haas laboratory on March 20.

Holy Name Society to Be Formed on Post

A Holy Name Society will be formed on the post shortly, under the auspices of Maj. John A. Zwack, Catholic chaplain here, it was announced last week.

The initial, organizational meeting is scheduled at 8 p.m. on Tuesday, April 8, in the form of a smoker in the Post Chapel's Social Room.

A movie about Explorer I will be shown and Maj. John E. Caryl, Canadian liaison officer for Redstone Arsenal, will speak. Refreshments will be served at no cost to those attending.

All Catholic military personnel interested in forming such a society are urged to attend. At this first meeting, temporary officers will be appointed, committees named, and a future meeting schedule worked out.

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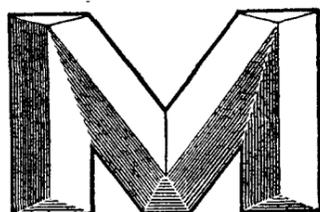
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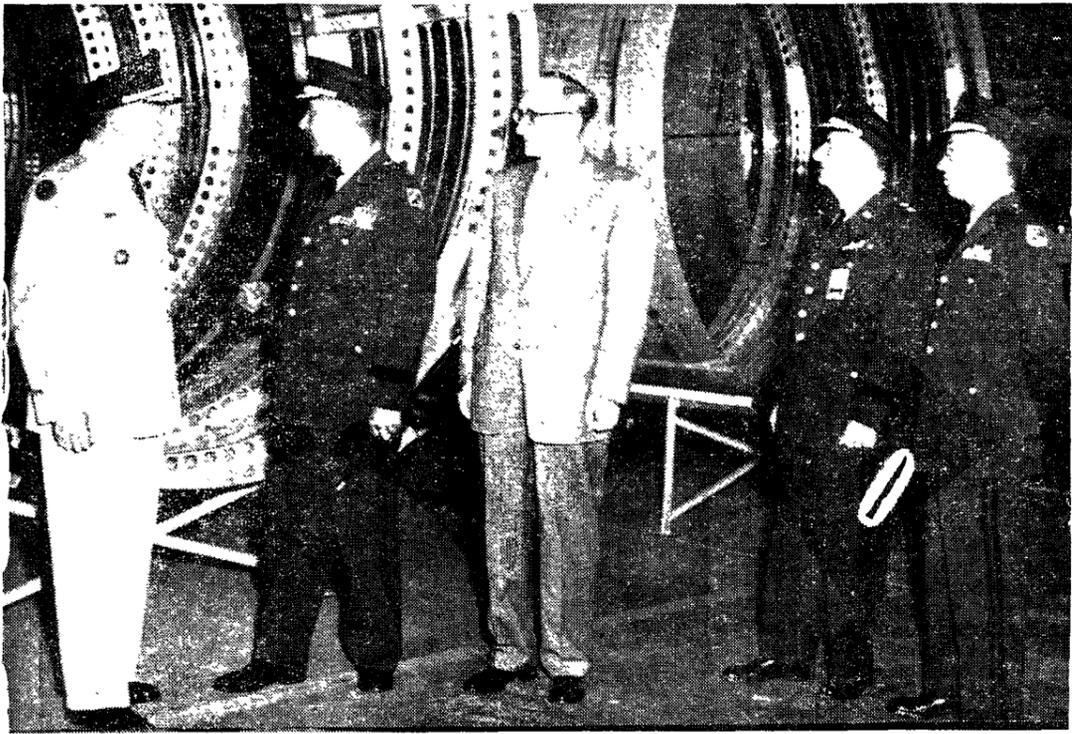
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ARMY R&D CHIEF VISITS—Lt. Gen. Arthur G. Trudeau (left), incoming Chief of Research and Development, Department of the Army, receives an orientation on the missile development at the Army Ballistic Missile Agency, during a two-day tour of the post last week. Maj. Gen. J. B. Medaris, chief of the Ordnance Missile Command explains the fabrication of a Jupiter missile. With Gen. Trudeau are Hans Maus (center), director, ABMA Fabrication Laboratory; Maj. Gen. Charles K. Gailey, chief, Civil Affairs and Military Government, Department of the Army; and Brig. Gen. J. A. Barclay (right), ABMA commander.

the satellite is making a full orbit around the earth, the minute recorder steadily makes a record of the data obtained from the satellite's instruments. The device has a tuning fork which provides an internal time standard, enabling scientists to determine at what moment a given event happened when the tape is played back.

The metal tape moves at a very slow pace during the recording cycle—5/1000 of an inch a second. Less than three feet of tape is required for the entire trip around the globe.

Then the satellite passes over or near one of the tracking stations which form a "picket fence" roughly along the 75th meridian from Washington, D.C., south to Santiago, Chile. At this north-south line a signal is given from the ground which trips the play-

back mechanism—and all the information gathered in the 110-minute flight is spit out and the tape is rewound and erased, all in a period of 10 seconds.

"We, in effect, tell it to speak up and tell us what happened all the way around the earth," Dr. Van Allen said.

Aside from its improvement in the consistency of information gathered, this new "memory system" reduces the power drain on the satellite's batteries. Both transmitters in Explorer III are expected to operate two months, while in Explorer I the high-powered beacon expired in less than two weeks. The recorder system for the second satellite made necessary the addition of a small radio receiver which receives the playback signal from the ground. The first satellite had no such instrument.

UTILIZING TINY TAPE RECORDER

**Explorer III Marks New Attainment
Collection of Data From Outer Space**

The launching of the Explorer I scientific earth satellite by the Army as part of the National Academy of Science's IGY program marks a new attainment in the collection of data from outer space—and primarily because of a remarkable instrument developed by the State University of Iowa.

A tiny magnetic type recorder is aboard the Explorer III, "freezing" on tape the important scientific information gathered by the vehicle on its trips around the earth. The data is transmitted to a single station in the orbital band on a signal given from the ground.

In this manner, American scientists are obtaining, for the first time, a comprehensive geographical survey of the total primary cosmic ray intensity in the equatorial zone in which the satellite is orbiting.

Until this time, information on the upper atmosphere and beyond was sketchy. No consistent data was available. For years scientists have been taking "point" readings by firing rockets up to an altitude of 100 miles.

A giant step was taken with launching of Explorer I on Jan. 31, 1958. This satellite obtained far more information than had ever before been available, but that data was not complete. Explorer I, having no tape recorder, transmitted continuously from two small radios. But much of the earth's surface over which it orbited had no receiving stations, therefore the data was not representative of the total orbit. Most of the "blanks" in Explorer I's relay of information occurred over large bodies of water where there were no receivers.

The miniature tape recorder is getting its first practical tryout in Explorer III. It was developed for this purpose by Dr. James A. Van Allen and George Ludwig of

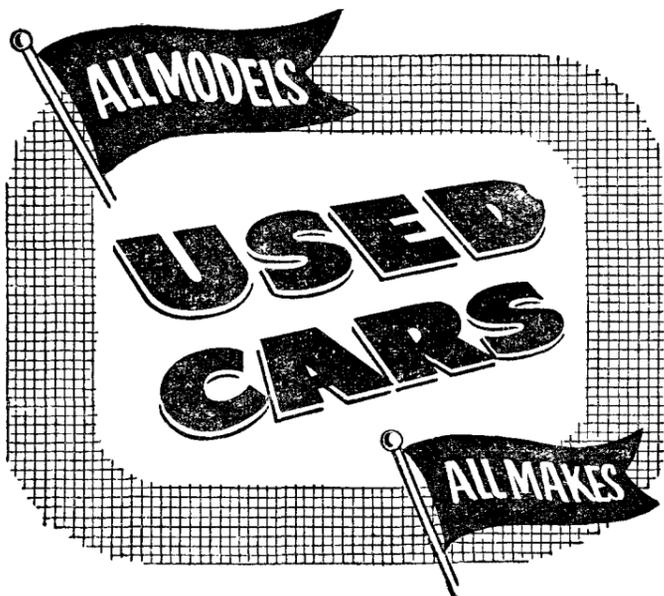
the Physics Department, State University of Iowa.

The recorder, extremely miniaturized, fits into the palm of the hand. In principle, it operates much like an ordinary house hold tape recorder, although it is much smaller and more specialized.

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ARMY'S SATELLITES HELPED INTO ORBIT BY UNIQUE DEVICE USING PRINCIPLE OF RIFLING IN GUN BARREL

The International Geophysical Year scientific earth satellites, launched by the Army, were partially guided into orbit by a unique device which used much the same principle as rifling in a gun barrel.

Atop the first stage of the Jupiter-C missile, Army Ballistic Missile Agency engineers mounted "spin launchers," actually cylindrical shaped buckets.

In these were placed the high-speed upper stages prepared by the Jet Propulsion Laboratory of Pasadena, Calif., which also packaged the Explorer payloads.

A few minutes before launching of the Jupiter-C, electric motors started the "bucket" spinning. The purpose of the spin is to minimize slight deviations in flight direction caused by uneven firing of the solid propellant rockets after the upper stages are separated from the modified Redstone Missile first stage.

Equalizing the thrust, which is achieved by the spinning ef-

fect, prevents the upper stages from veering off course.

The novel concept of the spin launcher was furnished by the Jet Propulsion Laboratory. Design and development were carried on in the Structures and Mechanics Laboratory of the Army Ballistic Missile Agency under direction of W. A. Mrazek.

A former Army sergeant who worked in guided missile development until his separation from military service in Sept., 1952, John Aberg, was one of the key figures in the undertaking. He is now chief of the Air Frame Development Unit and is an aeronautical research engineer.

Three different designs of the spin launcher were fabricated before an acceptable solution was found. Gustav Kroll, chief of the Fuselage Design Section, supervised the work of Aberg and E. H. Richert. They employed a cast magnesium structural design instead of the heavier, conven-

ANNUAL EASTER SUNRISE SERVICE SLATED SUNDAY

The thirteenth annual Easter Sunrise Service will be held this Sunday, 6 April, on Linton Field at 0515 hours.

This annual observance is sponsored by the Redstone Arsenal Chaplains and the Huntsville Ministers' Association.

As in the past, ministers from the Churches of Huntsville will participate in the service. Special music will be provided by the Redstone Missilemen and Maids under the direction of Lt. Lyle M. Barnard.

In case of inclement weather, the service will be held in the Post Chapel, using the main Chapel and the Social Room.

There will be two Protestant Easter Services at the Post Chapel on Easter Sunday. One service will be held at 1000 hours and one at 1115 hours.

The Chancel Choir and the Junior Choir will provide special music at the 1000 hour service with Chaplain (Lt.) W. J. Hughes bringing the sermon. At the 1115 hour service, the Chancel Choir will provide special music and Mrs. Lincoln Hunt will sing "Alleluia" by Mozart, and Chaplain (Maj.) James H. Goewey will bring the sermon.

The Chapel Nursery will be open during both services.

Photo Society Sets Print Competition

The Huntsville Photographic Society will hold its second black-and-white print competition tonight at the Shalamar Supper Club. The competition will start at 7:30 p.m. There will be two judges from outside the club and one from the club.

Two classes are entered, the amateur and the advanced worker. All members are urged to attend. Non-members are welcome.

Two Civil Service Announcements End

Two amendments published by the Board of U. S. Civil Service Examiners close announcement No. 5-35-26(57) and announcement No. 5-35-25(56) tonight at midnight.

The first is for grades WB-16 (\$2.37 p.h.) and WB-18 (2.52 p.h.) as experimental jet engine mechanics.

The second covers graphotype machine operators at GS-1 (\$2690 per annum) and GS-2 (\$2960 p.a.).

A third amendment has an addition to the rules covering dental assistants (GS-2, \$2960 p. a.) on announcement No. 5-35-50(57).

tional missile frame construction.

The spin launcher underwent rigid testing at the Laboratory including longitudinal loading tests and natural bending tests. They helped locate and eliminate minute foreign particles which might cause vibration.

In the actual launching, the "tub" as it is affectionately known among ABMA technicians, accomplished its mission of stabilizing the flight of the high speed stages on the predicted trajectory of Jupiter-C.

There was an earthquake recently which frightened inhabitants of a certain town. One couple sent their little boy to stay with an uncle in another district, explaining the reason for the nephew's sudden visit.

A day or two later, the parents received this telegram. "Am returning your boy. Send the earthquake."



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One man was killed and another hurt while working with an experimental propellant at

Rohm and Haas Company's Redstone Division last week.

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An investigation is being conducted to determine the exact cause of the explosion.

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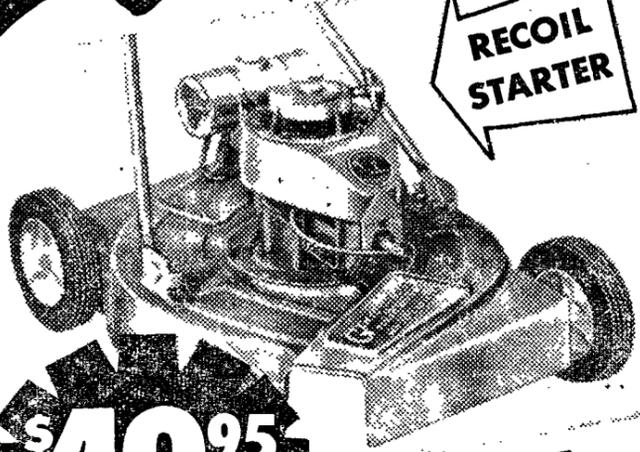
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VON BRAUN HONORED — Maj. Gen. J. B. Medaris, recently named commander of the Ordnance Missile Command, presents Dr. Wernher von Braun with an "Outstanding" Performance Rating Award. As director of the Development Operations Division of the Army Ballistic Missile Agency, von Braun was cited for his "initiative in leading the employes of your Division to scientific and technical break-throughs in the ballistic missile, space satellite, outer space travel, and related fields."

Easter Egg Hunt Set For Children of Post Military Personnel

The Easter bunny has laid dozens of pretty, colorful eggs at the driving range located behind the Rocket Service Club on Patton Road at Gate 14, and all dependents of military personnel ages two through eight, are invited to attend the Easter Egg Hunt to be held at 2 p.m. Saturday (April 5) to find them.

A golden egg has been hidden for each age group and a prize will be presented to the children finding them.

Prizes will also be given to the children finding the most eggs. In case of rain, the hunt will be cancelled.

Capt. Hilbert Cited

Capt. Marquis De Laine Hilbert of the Aviation Section, Army Ballistic Missile Agency, recently received a Certificate of Achievement.

Capt. Hilbert received the Certificate for meritorious service from 12 Feb. 1955 to 15 Feb. 1958 while serving as executive officer and flight operations officer, Airbase Section, U. S. Army Avia-

tion Center, Fort Rucker, Ala. He was commended for his part in "inaugurating the installation of a system of electrical navigational aids at the U. S. Army Aviation Center, thereby aiding in the progress of establishing the first Military Approach Control System in the U. S. Army."

Capt. Hilbert, who attended the University of Pittsburgh for two years, entered the Army in

A driving school offers this sage advice: If your wife wants to learn to drive, don't stand in her way.

Philo Sofie says that a man never learns anything when he's talking. Too bad women haven't heard about it.

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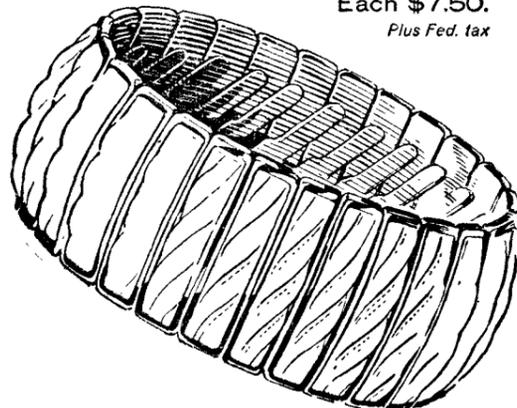
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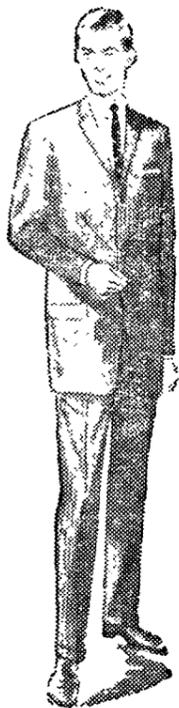
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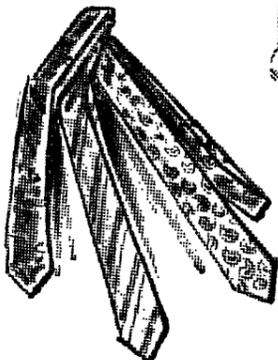
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These Are the 'Men Behind the Missiles'

These are the men behind the missiles—the men of the Army Ballistic Missile Agency who provided the leadership in the successful launching of the U. S. Army's scientific earth satellite, Explorer III:

Major Gen. J. B. Medaris, ABMA commander until his recent appointment as commander of the Ordnance Missile Command, directs the Army's ballistic missile and satellite program. He was born at Milford, Ohio. The 55-year-old general, educated at Ohio State University, has wide experience in the Army Ordnance missile fields. His military career began as a Marine private in 1918. He commanded ABMA since its inception, Feb. 1, 1956.

Dr. Wernher von Braun, 45, is director of the Development Operations Division, ABMA. The old-famous rocket authority holds his doctorate in physics from University of Berlin at 22 and has been a leader in rocketry since that time. He led scientific teams who developed the Redstone and Jupiter missiles. He worked in the U. S. Army missile program since 1945, and became an American citizen in 1955.

Major Gen. John A. Barclay, 48, of Colorado Springs, Colo., was deputy commanding general of ABMA before his reappointment as its commander. He was graduated from the U. S. Military Academy in 1931 and later received an M. S. degree in engineering from Massachusetts Institute of Technology. His extensive military service has been in Field Artillery and Ordnance.

Major Gilford G. Quarles, native of Charlottesville, Va., is the scientific and technical consultant to the commanding general. He was graduated at the University of Virginia and has been associated with Mercer University, Macon, University of Alabama; Furman, Harvard, and Penn State Universities.

Dr. Bernhard Rees, 50, is deputy director of ABMA's Development Operations Division, working under Dr. von Braun. He received

his technical education at Stuttgart and at the Dresden Institute of Technology, Germany. During World War II, he served as technical plant manager of the Guided Missile Center, Peenemuende.

Dr. Ernst D. Geissler, 42, is chief of the Aeroballistics Laboratory at ABMA, which mapped the satellite's trajectory and directed related planning. He was educated at the Technical University of Dresden, Germany, and formerly worked at Peenemuende in missile stability and control.

Aeroballistics Lab's Work Had Big Part in Explorers

(Editor's note: This is the first in a series of articles dealing with the laboratories of the Army Ballistic Missile Agency—and the people who make them click.)

Explorers just don't happen—they represent a tremendous amount of scientific and technical effort, planning, investigations, and computations involving all the physical sciences and most of the fields of engineering.

A brief review of the effort put forth by personnel of the Aeroballistics Laboratory of the Army Ballistic Missile Agency gives some measure of the total output.

Dr. Ernst Geissler directed the Lab's contributions. He spent five years at Peenemuende as a section leader for theory of flight and control of guided missiles and has been engaged in the Army's missile programs since November, 1945.

His deputy, Dr. Rudolph F. Hoelker, has been involved in missile work 18 years. He carried the overall responsibility for the flight performance of the Army's contribution to the International Geophysical Year, the trajectory problem, the aberration pattern, theoretical guidance and control study, range safety study, ignition time calculation of the upper stages of Jupiter-C, the rocket which launched Explorer, and the study of wind effects on the flight.

Otha C. Jean, 29-year-old alumnus of Middle Tennessee State College, was responsible for layout and establishing of the trajectory followed by Explorer on

its way into orbit. This required a study of the pattern of deviations encountered from wind and other disturbances.

He also carried on the study of the range safety situation at Cape Canaveral, the launching point, with the help of E. L. Sullivan and Elmo Tucker of the Flight Mechanics Section.

When high-altitude jet stream winds forced postponement of the Explorer I launching, Jean was responsible to predict the effect of the velocities on the Jupiter-C vehicle.

The Deputy Chief, Flight Mechanics Section, William E. Miner, was responsible to establish the optimum ascent trajectory, the elliptical free-flight motion of Explorer and its instantaneous location above the earth, and for developing refined schemes for a fast method of finding ignition time for upper stages of the Jupiter-C. Miner was present when Explorer I was launched.

He holds a bachelor's degree from the University of Florida and a master's degree from Washington University, St. Louis, Mo.

Joyce K. Neighbors, Auburn graduate, prepared methods for the exact timing of the upper stages ignition to achieve highest apogee altitude of Explorer. This required preparation of comprehensive diagrams to be used at the firing point for quick evaluation of the Jupiter-C flight path and direct reading off of the best time when the button was pushed to fire the upper stages into orbit.

The intricate and extensive graphical work was performed with the aid of Mrs. Evelyn Carter, Chief of the Engineering Aids Unit. Miss Neighbors is a member of Sigma Pi Sigma, honorary physics fraternity, and Pi Mu Epsilon, honorary mathematics society.

In the early phases of the satellite program, Phillip W. Zettler-Seidel conducted systematic investigation of the dispersion of the rotating, high-speed upper stages of Jupiter-C due to unequal ignition, unequal burning, and other factors arising out of the rocket elements. This led to establishment of the lower limits of the rotational velocity of the upper stages.

Zettler-Seidel studied mathematics and physics at the University of Leipzig and worked in wind-tunnel operations at Peenemuende. He was employed by the Naval Ordnance Laboratory after coming to the United States until March, 1952, when he joined the Army team. He is chief of the Vibration and Flutter Analysis Section.

Four members of the Aerodynamic Analysis Section were responsible for the aerodynamic aspects of the missile during its propelled flight.

In the early design stages of the Jupiter-C, Homer B. Wilson, Chief of the Boundary Layer and Special Projects Unit, handled problems of lift, drag, and stability of the missile. Later these assignments were transferred to the Missile Design Unit headed

by Edward L. Linsley. In the final stage, they were the responsibility of Larry K. Donehoo, aeronautical research engineer. His work provided information on the missile's reaction to angles of attack and control deflections which, in turn, formed the basis for control investigations of the Guidance and Control Laboratory.

General supervision, questions of aerodynamic loads on the Jupiter-C structure, and aerodynamic power requirements for spinning the upper stages were handled by Werner Dahm, Section Chief. Dahm has spent 17 years in missile work, dating back to his experience in Germany. Wilson is 33 and has degrees from Georgia Tech and the University of Virginia. Linsley is 36 years old and received his degree from the University of Alabama. Donehoo is 26 and a graduate of Georgia Tech.

The Flight Evaluation Section's missions included the following: Preparation of nomograms and partial derivatives for quick-look evaluation of the first-stage flight performance of Jupiter-C and for prediction of velocity, range, and altitude of the missile exactly at the point of ignition of the second stage.

Execution of quick-look evaluation at the actual firing, the first step towards prediction of orbital characteristics.

Participation with the Jet Propulsion Laboratory in the evaluation program of the higher stages.

Comprehensive analysis of telemetered, missile-borne measurements and external tracking data.

Dr. Fridtjof A. Speer is Section Chief. He is 35 and a graduate of the Technical University of Berlin where he was assistant professor for experimental physics until 1954.

Clarence R. Fulmer, 31, is chief of the trajectory unit. He attended Newberry, S. C., College and has been in missile work five years. John P. Sheats, 38, and Joe W. Jackson, 30, also participated. Sheats attended Athens College, the University of Alabama, and Florence State Teachers' College. Jackson attended Carson-Newman College, Jefferson City, Tenn., and George Peabody College in Nashville.

"My section was responsible for evaluation of the flight performance of the missile control system, the power plant, and the influence of winds", Dr. Speer explained. "We calculated important trajectory points such as burnout, ignition, and first-stage apex."

"We also checked the accuracy of the cluster ignition command and interpreted injection data in terms of accuracy of the attitude control system and of cluster dispersion."

"Are you the young man who jumped in the river and saved my son when he fell through the ice?"

"Yes, ma'am."

"Well, where are his mittens?"

Dr. Helmut Hoelzer, 46, directs the ABMA Computation Laboratory and is in charge of computing missile trajectories and satellite orbits. A graduate of Technical University, Darmstadt, Germany, he has been active in the electronic computation field for many years, and holds several patents for advanced analog computers.

Hans H. Maus, 52, is chief of the Fabrication Laboratory, which modified and prepared the Jupiter-C missile for firing. He is a graduate of the technical schools at Darmstadt and Munich, Germany. He was engaged in the rocket production at the Guided Missile Center, Peenemuende.

Dr. Walter Haeussermann, 48, is a graduate of the Stuttgart and Darmstadt technical Universities. He is chief of ABMA's Guidance and Control Laboratory, which was responsible for developing the Redstone, Jupiter, and satellite guidance systems. He has pioneered in this field in the U. S. and Germany.

Hans Hueter is chief of the Launching and Handling Equipment Laboratory, where the big missiles' ground equipment is developed. A native of Bern, Switzerland, he received technical education at a college in Mittweida, Germany. He has been in Army rocket and guided missile work since 1932.

Dr. Kurt H. Debus, 49, is chief of the ABMA Missile Firing Lab at Cape Canaveral, Fla., where the Jupiter-C and other Army missiles are launched. A graduate of Technical University, Darmstadt, he was chief test engineer at Peenemuende. His experience with guided missiles dates back to 1940.

William A. Mrazek, 47, directs the Structures and Mechanics Laboratory at ABMA in the research, design, and development of missiles in such areas as configuration and propulsion. He was educated at the Technical University of Bruenn.

Erich W. Neubert, 48, heads the Systems Analysis and Reliability Laboratory, which is concerned with assuring reliability of missiles in flight. A former design and consulting engineer, graduate of the Institute of Technology at Darmstadt, he joined the German guided missile program in 1939.

Karl L. Heimburg is director of the ABMA Test Laboratory. His Lab checks all missiles prior to firing. Forty-eight years old, he worked in the development of the power plant and related components for the V-2 and Wasserfall missiles. He was educated at Darmstadt.

Dr. Ernst Stuhlinger, 44, heads the ABMA Research Projects Office where much of the planning on Army earth satellites was conducted. A physicist, he was educated at the University of Tuebingen, and was concerned with missile guidance at Peenemuende. Before World War II he worked with Dr. Hans Geiger, developer of the Geiger counter.

Heinz Herman Koelle, 33, heads the preliminary design section in the Structures and Mechanics Laboratory. A native of Germany, he graduated from Bender Oberschule, Breslau, and the Institute of Technology, Stuttgart. He founded the Society for Space Research in Stuttgart in 1952, and was formerly secretary of the German Rocket Society.

Dr. Hans F. Gruene is deputy chief of the ABMA Missile Firing Laboratory. Forty-nine years old, he was educated at the Technical University of Braunschweig. He was a research engineer at the Peenemuende Guided Missile Center.

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ALL DRESSED UP FOR EASTER—With ribbons and ruffles and a bow in her hair, pretty little Miss Sybella Koch is all ready for the Easter bunny. The things he brought her last year are still good but she's excited about this year's visit. Sybella and her parents, SFC and Mrs. Herbert Koch, moved to Redstone recently from Ft. Monmouth, N. J. Sgt. Koch is an instructor in the Guidance and Control Branch, OGMS.

40 COUPLES ATTEND MEET OF NEW INTERNATIONAL WIVES CLUB HERE

Approximately 40 couples joined the International Wives Club Saturday night for a chicken dinner and a movie on Germany. They met in the Redstone Room. The club was recently organized by the wives of officers in the Redstone Arsenal area to acquaint new U.S. citizens with the customs of other countries as well as their newly-adopted one. This was the first time that the



FAREWELL SURPRISE—Brig. Gen. John G. Shinkle, commanding general of the Rocket and Guided Missile Agency, bids farewell and offers best wishes to Maj. and Mrs. Jack Carstarphen. The major has been the Redstone Arsenal executive officer since last August. Prior to leaving for an assignment in Italy last week, the office staff prepared a surprise party at which the major was presented a Commendation Ribbon. He came to Redstone Arsenal in 1954 from an assignment in the Far East. Mrs. Carstarphen was employed at Thiokol Corp. until she resigned to accompany her husband overseas.

Awards Luncheon Set By Officers Wives Golf Group

The monthly awards luncheon of the Redstone Arsenal Officers Wives Club Golf Group will be held at 12:20 p.m. Wednesday, April 2, at the Squirrel Hill Officers Club. The following awards for the month will be presented.

Best six holes with handicap—first flight, Mrs. Bruce Pierce; second flight, Mrs. Carl Messinger.

Name your own handicap event—first flight, Mrs. Reino Lehtonen; second flight, Mrs. John Zierdt.

Low gross score for 9 holes, 1st flight, Mrs. Orin Roundy; second flight, Mrs. W. F. Diggs.

Low net score for nine holes—first flight, Mrs. Bruce Pierce; second flight, Mrs. C. L. Ferrell. A putting contest for nine holes will be held prior to the luncheon. A special feature for the meeting will be a talk by Col. B. B. Drummond, sponsor of the golf group.

Twenty-one ladies have registered for the golf clinic to be conducted for three consecutive weeks beginning April 2. Mrs. Estes of the Municipal Golf Course is the instructor in charge of the clinic.

The tournament committee consisting of Mrs. Orin Roundy, Mrs. Reion Lehtonen and Mrs. Dante Vezzoli met Friday at the home of Mrs. H. H. Northington, golf chairman, to make plans for the coming weekly golf events and a Spring Tournament slated for June.

The Scotch Foursome Tourna-

wives and husbands had met together. Hostesses for the evening included Mrs. John Fill, Mrs. R. W. Miles, Mrs. Walter Kasper, Mrs. E. Swartout, Mrs. F. Dawson, and Mrs. Kenneth Waugh. Following dinner, Capt. Rudolph Nottrott showed movies of Germany. Then there was a roll call of countries and a display of flags of each country.

The place cards were decorated with flags of the countries where the people originally lived. Among the nations represented were the U.S., France, Germany, Denmark, Greece, Argentine, Switzerland, Great Britain, Canada, Newfoundland, Norway, the Philippine Islands, Turkey, Japan, and Australia. The centerpiece was composed of daffodils and chrysanthemums.

The organization is open to new members who are interested in learning about the customs of people of other nations. Any one of the committee members is available for questions about this club which has no dues and no books. The hostesses for the dinner meeting are also the organizing committee.

ment in progress must be played off by the last week in April.

Eighteen members of the Redstone Arsenal Officers Wives Club Golf Group attended a luncheon Thursday at the Huntsville Country Club in honor of Patty Berg.

The group was welcomed by Mrs. Milton Cummings, chairman of the Huntsville Ladies Golf Association.

Following the luncheon Miss Berg conducted a clinic and exhibition on the fundamentals of golf. A foursome made up of Patty Berg, Marty Webb, Bob Lowery, and Dick Spencer played an exhibition match.

April Tea Scheduled By Officers Wives

The Redstone Arsenal Officers Wives Club will hold an April tea on Tuesday, 8 April, at the Redstone Room, Squirrel Hill Officers Club, from 2 p.m. to 4 p.m.

Reservations for the tea must be made not later than noon on Monday, 7 April. Guests are welcome. For reservations call Mrs. Reinartz, ext. 3152, or Mrs. Kostoff, ext. 2959.

To cancel from the permanent reservation list call Mrs. Salter, ext. 5255. For nursery reservations call ext. 3958.

A small weekly newspaper was describing a wedding: "The mother of the bride wore a light beige dress which fell to the floor . . ."

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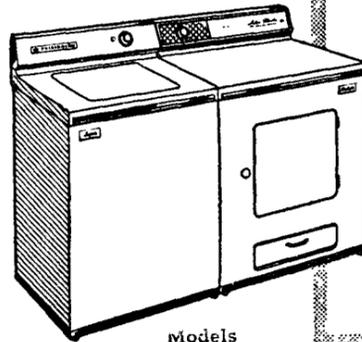
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COL. O'KEEFE

(Continued From Page 1)
 served in many countries outside the United States. His assignments include: Director of technical training, Ordnance School, Aberdeen Proving Ground, Md.; director of maintenance, Red River Arsenal, Tex.; commanding officer, 85th Ordnance Base Depot (Italy); assistant chief ordnance officer, Mediterranean Theater; chief of ordnance section, U. S. delegation to the North Atlantic Council (London and Paris); and a member of the Procurement Division, Department of the Army general staff.

Col. O'Keefe is married to the former Mrs. Marguerite Hall of London, England.

Col. Woestenburg came to Redstone last year from Thailand, where he was Ordnance Officer for the joint U. S. Military Advisory Committee. He spent 26 months in Thailand with headquarters at Bangkok.

He was awarded the Bronze Star Medal for meritorious service in Germany during World War II. The colonel spent 1944-45 in Europe. With a nine-month break for school, he then went to Japan for the next four years, of which eight months were spent on Anguar Island in the South Peleliu group as a mining supervisor. Col. Woestenburg studied at Christian Brothers College in Cork, Ireland, for three years. When he returned to the United States, he worked as a tool maker and experimenter in metal at Fostoria, Ohio.

His mother, Mrs. J. M. Woestenburg, lives in Santa Monica, Calif. The colonel was born in Calif. The colonel was born in

WORKING

(Continued From Page 1)
 past several days, formulating final plans for the new Command based on preliminary planning which has been under way for many months.

The planning unit is working directly under the supervision of Gen. Medaris and his deputy, Maj. Gen. H. N. Toftoy, formerly commander of Redstone Arsenal.

Other members of the working group, representing both ABMA and Redstone Arsenal, include Joseph Moquin of the ABMA Control Office; Col. Clifton F. Nooncaster, ABMA Headquarters Commandant; Col. William J. Durrenberger, Chief, ABMA Financial Management Office; Fred Sayers, Chief of Program Coordination in the RSA Plans Coordination Office; Willie N. Calcote of the

Cuthill, before coming to ABMA in February 1956, was the Chief Engineer in the Industrial Engineering Division, Office, Chief of Ordnance, Washington.

He is a native of Pennsylvania. He graduated from Drexell Institute of Technology, Philadelphia, Pa., in 1938, receiving a bachelor of science degree in mechanical engineering.

He is a member of Pi Tau Sigma and Phi Kappa Beta fraternities and the American Ordnance Association.

Cuthill is married to the former Miss Margaret C. Prince and the couple has two children, Martha Anne, 14, and Robert W., Jr., 11.

Since his employment with Civil Service began in 1938, Mr. Cuthill has earned the Meritorious Award and two Superior Performance Awards.

ABMA Control Office; and Merle C. Bacon, Program Management Officer in the Office of the Redstone Deputy Post Commander.

The Army Ordnance Missile Command was established with the basic objective of unifying all of the efforts and resources in the missile field to permit effective direction, control and coordination.

The Command Headquarters is being organized on a modified "general staff" concept. There will be a Chief of Staff, and Assistant Chiefs of Staff who will be responsible for the principal functions of the Command Headquarters.

Command Headquarters will be an integrated Army organization staffed by personnel from many branches of the Army in addition to the Ordnance Corps. It will provide overall guidance in all phases of the missile field without becoming operational itself. The "general staff" military command concept has been modified to fit the particular situation, that of an organization concerned with research, development, and industrial activities, plus the support of missile systems in the field.

While top echelons of the new Command are now functioning, it will be several months before the

Special Services Activities

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Command is fully organized and staffed. Target date for this is June 30, 1958, the end of the fiscal year.

Elements of the Missile Command will include the Army Ballistic Missile Agency; the Army Rocket and Guided Missile Command (formerly Redstone Arsenal); White Sands Proving Ground, N. M.; the Jet Propulsion Laboratory, Pasadena, Calif.; and a Post Commander of Redstone Arsenal.

The Post Commander will be responsible for all common services required for the Command Headquarters, ABMA and ARGMA, as well as the U. S. Army Ordnance Guided Missile School, a separate activity located at Redstone Arsenal.

Saturday 1300-1730.
 Sunday 1300-1600

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 Wednesday thru Friday 1400—1630 and 1730—2200.
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QUARLES

(Continued From Page 1)
 Command was activated March 31 with Headquarters at Redstone Arsenal. The Command unites under single direction the various Army Ordnance missile activities in Alabama, Florida, New Mexico, and California.

Dr. Quarles has been Scientific and Technical Consultant at ABMA since November, 1956. He was formerly director of the Ordnance Research Laboratory at Pennsylvania State University.

A graduate of the University of Virginia, Dr. Quarles received his bachelor's degree in 1930, a master's degree in 1933, and a doctorate the following year. He became acting professor of physics at Mercer University in Macon, Ga., in 1934 and joined the faculty of the University of Alabama as assistant professor of physics in 1935.

In 1941, he was appointed associate professor and head of the physics department at Furman University, Greenville, S. C. He became a research associate in weapons work at Harvard University in 1944 and moved to Penn State in 1945.

During World War II, Dr. Quarles was responsible for research, development, and engineering in connection with a homing torpedo.

Dr. Quarles has had numerous scientific works published. He is member of the American Physical Society, the American Institute of Electrical Engineers, the American Society of Engineering Education, the American Ordnance Association, Sigma Xi, and Tau Beta Pi.

Dr. Quarles is a native of Charlottesville, Va.

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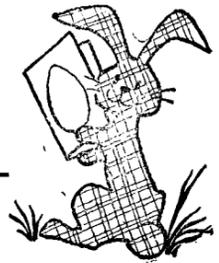
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At the Service Club

Ah, April at Redstone, and this is a good time to arouse from winter's lethargy and look around to see what can be done to take advantage of the spring air. Somehow the rain—in April, it's called showers—doesn't seem so bad. Tender leaves soften stark outlines of bare trees, the unbearable becomes bearable, and young men's thoughts turn over and over.

From lyrical to miracle, I should like to present some thoughts accidental to working at RSCSAH AUSA.

First, we would like to proclaim this Read Your Service Club Column Week. Establish the habit of looking through the Service Club news, and you will see that plans are underway to provide an exciting April schedule.

Second, we have wondered if for the convenience of the NATO students it would be a good idea to print the Service Club news in the seven or eight languages represented here. This proposed brainstorm was provoked by our desire to see that everyone feels at home at the Service Club. Such a project would require linguistic assistance since I speak, write, and understand only Souglomerate, off-spring of English and pig-latin, official language used only around farms and stockyards when conversing with pigs. Any proffer of assistance in this project can only be rewarded by the merits of the gesture.

Third, we haven't had so much fun in years. One-two-three-hold! One-two-three-hold on to what

remains of your joints. This is the place where you had rhythm, lost it, and are trying to relocate it. From the dance classes come sounds of creaking joints, groans of aching muscles, and shuffling of tired feet and the following dialogue.

Director, (directing): Get some hip action!
Struggling Dancer: Fine, as soon as we get it back in place. It's obvious those latin gals don't lace!

But when these lads and lasses graduate they will know the subtle hip-dipping, knee-bending, keep-it-under-control art of the rhumba (pronounced with a long double O)

Fourth, we will roll back the rugs on the 8th and 22nd for dancing. Tommie Martin and vocalist will provide music and melody for the 8th date. Larry Elliott, our big name band of the month will appear here on the 22nd. Naturally, hostesses will be here on both occasions. Make plans to rollick at the April frolics.

Fifth, it's tour time once again. The first tour of the season will be to Wilson and Wheeler Dams, the Joe Wheeler Home, and Helen Keller's birthplace, in the Tri-Cities (Florence, Sheffield Tuscumbia). Get your name on the list and when we honk the horn on the 13th be ready.

Are you in the affirmative—are you of the mind-do you nod in approbation—do we get your confirmation, that it's awfully nice—it's almost paradise—to have a cup of coffee around the house?

The modern girl's ambition is just what her mother's was—to make some man a good husband.

SPORTS QUIZ

- Who compiled the longest batting streak in the National League during the 1957 season?
 - Bill Russell of the Boston Celtics smashed every rebound record in the NBA during the past season. Who held the record for most rebounds and high average-per-game before Russell?
 - Since its beginning, there has been only one year in the American League that did not produce a 20-game winner among the pitchers. What year was it?
 - Who hurled the only opening day no-hit game in the major leagues?
 - Who won the 1957 Kentucky Derby?
- (Answers to Sports Quiz)
1. Wally Moon of the St. Louis Cardinals. He hit safely in 24 consecutive games.
2. Maurice Stokes of the Rochester (now Cincinnati) Royals.
3. 1955
4. Bob Feller of the Cleveland Indians. Opening day, 1940.
5. Iron Liege.

Movie Schedule

Wednesday, 2 Apr. "St. Louis Blues" starring Nat "King" Cole, Eartha Kitt Pearl Bailey, Ella Fitzgerald and Cab Calloway (F). Time 1315, 1830 and 2030.
Thursday & Friday 3 and 4 Apr., "The Long, Hot Summer" starring Joanne Woodward, Paul Newman, Anthony Franciosa and Orson Welles (M). Time 1315, 1830 and 2030.
Saturday 5 Apr., "Ghost Town" starring Kent Taylor, John Smith and Marian Carr (F). Time 1530.
Saturday 4 Apr., "Ghost of the China Sea" starring Lynn Bernay and David Brian (F). Time 1830 and 2030.
Sunday, 6 Apr., "Touch of Evil" starring Charlton Heston, Janet Leigh and Orson Welles (M). Time 1400 and 2030.
Monday 7 Apr., "Girl on the Loose" starring Mara Corday, Mark Richman and Lita Milan (M). Time 1315 and 1830 and

Safety Scoreboard

(As of March 31)

Days since last civilian disabling injury—11.	Our Goal	30
Days since last military disabling injury—5.	Our Goal	30
Days since last contractor personnel disabling injury—3.	Our Goal	300
Days since last government vehicle accident—0.	Our Goal	30

Rohm & Haas Blast Ends Long Contractor Record for Safety

An explosion in a propellant processing bay resulted in death to one Rohm and Haas employe and injury to another, thus ending a very good "accident-free" record compiled by contractor personnel at Redstone Arsenal. The 273-day record represented ap-

proximately 3,262,600 man-hours without an injury which resulted in lost time. A new goal of 100 days without a lost time injury has been set for the contractor personnel.

Wife: "Oh, John, that woman next door has a hat just like mine."
John: "Well, I guess that means you want to buy a new one?"
Wife: "It would be cheaper than moving."
Fussy diner: "Waiter, bring me one large chop — and make it lean."
Waiter: "Which way, sir?"

proximately 3,262,600 man-hours without an injury which resulted in lost time. A new goal of 100 days without a lost time injury has been set for the contractor personnel.

FIELD SERVICE BOWLING LEAGUE

Team	Won	Lost
Guided Muscles	66	42
Crackers	59	49
Expeditors	57	51
Peons	54½	53½
Hawks	52	56
Blue Streaks	51	57
Buzzards	51	57
Honest Johns	41½	66½

200 Games: Barney 200; Sanford 200; Torzillo, 200; Eden 202; and Thompson, 210.

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SUNDAY & MONDAY



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TUESDAY ONLY



WHITESBURG DRIVE-IN

THURSDAY & FRIDAY



Plus

SATURDAY ONLY



Plus

SUNDAY & MONDAY



Plus



LYRIC THEATRE

"HUNTSVILLE'S FINEST"
WED., THURS., FRI.

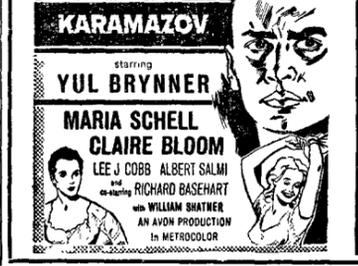


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HOLY WEEK AND EASTER SERVICES
 Post Chapel — Bldg. 3714

PROTESTANT
 Wednesday, 1845 Hours—Chancel Choir Rehearsal.
 Holy Thursday, 1930 Hours — Maundy Thursday Service with Holy Communion.
 Good Friday, 1230-1400 Hours — Good Friday Service.
 Easter Sunday, 0515 Hours — Sunrise Service on Linton Field. 0945 Hours, Sunday School, 1st Session, 4th grade through Jr. High.
 1000 Hours—Adult Bible Class in Service Club TV Room.
 1100 Hours — Sunday School, 2nd Session, 3 yrs. of age through 3rd grade.
 1000 and 1115 Hours — Easter Sunday Worship. Nursery for babies and small children during services.

CHAPEL NO. 2 (40th Group Area) PROTESTANT
 Sunday, 0930 Hours — Easter Sunday Worship.
 1830 Hours — Fellowship Worship.

CATHOLIC
 Wednesday, 1900 Hours—Bible Study Group.
 Holy Thursday, 1700-1800 Hours — Mass.
 1800-2400 Hours — Adoration (Blessed Sacrament Chapel).
 Holy Friday, 1500-1800 Hours — Mass.
 Holy Saturday, 1600-1800—Confessions.
 2230 Hours—Easter Vigil Mass.
 Easter Sunday, 0845 Hours — Mass.
 1600-1700—Solidarity Reception.
 Tuesday, 1930 Hours — Novena in Honor of Miraculous Medal. Choir Practice following Novena.
 2000 Hours — Holy Name Society Meeting and Smoker (Social Room).
 Daily Mass, 1700 Hours (Monday, Tuesday, and Wednesday only during Holy Week).
CHAPEL NO. 2 (40th Group Area) CATHOLIC
 Sunday, 1030 and 1130 Hours—Low Mass.

Bible Study Group Formed on Arsenal

On Thursday, April 10, a Bible Study Group will begin at the Post Chapel by Chaplain (Lt.) William J. Hughes. This group will meet once a week in the evening at the Post Chapel.

"There is also the possibility that we may begin a second group to meet during the day. This will be a discussion type of study group and we will be studying one book of the Bible each month. For May the book of the Bible will be the 'Gospel According to Mark,'" said Lt. Hughes.

"We invite all who are interested in this program to come and join us in studying the book that is not only the most influential in our history but is even more basically the 'guide and stay' for our Protestant faith. If you would be interested in participating please call Ext. 2409 for further details," Lt. Hughes added.

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Applications Section of the Computer Department in Phoenix, Ariz.

Technical assignments and guidance are provided by Charles L. Bradshaw, assistant for digital computation and by Dr. Hoelzer.

GE now employs 85 in the Huntsville operation and is continuing to recruit additional personnel, particularly in the professional manpower category.

In addition to theoretical and engineering computations which must be performed before a missile is constructed, much of the computations work involves trajectories. These are mathematical predictions of the missile's path after firing, taking into consideration different conditions such as weight, fuel, wind, and others. These calculations are also the key which determines type and size of satellites that can be placed in orbit.

If a trajectory of a missile system is planned in such manner that an object enters upon an orbit as an earth satellite, the problem then requires finding out where the satellite is at any given time or where it will be

some time in the future.

The giant machines at Huntsville compute some satellite tracking but the Missile Agency's in-

terest is primarily in acquiring data which will assist in the development of other satellite systems.

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<p>SPORT COATS</p> <p>lightweights and fine woolsens including all-whites and smart Ivy patterns</p> <p>17⁹⁵ & 22⁹⁵</p>	<p>SLACKS</p> <p>All sizes, all colors, all fabrics, weaves and patterns in regulars, shorts and longsl</p> <p>5⁹⁵ to 12⁹⁵</p>	<p>DINNER JACKETS</p> <p>All-white</p> <p>21⁹⁵</p> <p>Tuxedo Pants 9⁹⁵</p>
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Auction House, West Holmes St. — auction every Thursday night. Furniture sold off the floor each day of the week. If you have anything to sell we will sell it for you on 20 per cent commission. Phone JE 6-2241. tfc

FOR SALE — Rare collection of Civil War lithographs. All in good condition. Also antique furniture. 175-J, Fayetteville. 4-5p

HOUSE FOR SALE—3 bedrooms, 1 paneled, brick veneer, ceramic tile bath with vanity, attached garage, washer, dryer connections, other attractive features, less than 1 year old, FHA equity for sale, phone JE 6-5205. 4-5c

ROOMS FOR RENT—Single and double for men with good habits, completely and newly decorated, economically priced. Central Y.M.C.A. Dial JE 4-7131. tfc

EASTER OUTFITS TAILORED for perfect fit, alterations, designing, re-designing a specialty, prices reasonable, work guaranteed. Phone JE 6-3821. 3-5c

LOTS ON GUNTERSVILLE LAKE
Just opened up beautiful new Meadow Wood with 46 excellent home sites. 20 waterfront lots. We also have several choice cottage sites. See or call Hootie Woodall, Woodall Real Estate and Insurance Agency, phone Justice 2-4351 or 2-4471, Guntersville. tfc

FOR SALE: Lake front residential property. Also: Lake front cabins and lots. See Word Real Estate and Insurance Agency, Guntersville, Ala. Office at the City Boat Dock. 5-23p

FOR SALE — 1951 Lighthouse 27-ft. housetrailer. Complete bathroom with shower. Four-burner apartment size gas stove, Kelvinator refrigerator with 25-lb. freezing compartment, breakfast bar, double compartment kitchen sink. Hot water heater, circulating oil heater with built-in floor ducts. Built-in 21" TV set with outdoor antenna, multi-colored plastic tile flooring. Plastic fabricated ceilings, venetian blinds on all windows. Sleeps four. All aluminum outside. Two five gallon gas bottles, electric breaks, good tires. See at B & J TRAILER COURT, Lot 11. 1tc

7-ROOM HOUSE in Hartselle for sale. Fine neighborhood, paved street, double carport, recently remodeled. Moving to new employment at Florence. Call, write or visit. L. T. WAGNON, 603 Short St., Pho. SP 3-6441. 4-17c

FOR SALE — One riding horse, 3 years old, weight 700 pounds, broke to work and ride, gentle and in perfect shape. Also, one Mexican burro with saddle, bridle and blanket, gentle with children, 2½ years old. Call after 6 p.m. JE 4-7552. 1tc

LT. O'NEILL HONORED

Lt. John N. O'Neill recently received the Commendation Ribbon with Metal pendant for meritorious service performed in the patent office at Redstone Arsenal. Lt. O'Neill is a member of the Illinois Bar Association. He graduated from the John Marshall Law School and later received a doctor of jurisprudence degree from the University of Chicago. Prior to his Army assignment at Redstone, the lieutenant studied at the Judge Advocate General School at Charlottesville, Va. Before active service, he was a research associate in the University of Chicago law school.

FOR SALE — 1955 Silverdome House Trailer, air conditioned, other extras, priced to sell. Call T. BELISLE, JE 6-7283 or JE 6-5581. 1tc

FOR SALE — 1950 Ford V8 4-dr. Custom, real clean, near new tires and seat covers, in good mechanical condition, \$350.00. Phone JE 2-3530. 1tc

FOR SALE — Westinghouse 300 amp. electric welder with helmet, welding rod, gloves, etc., also acetylene welding outfit, complete less tanks, both used very little, like new. Call JE 4-7552 after 6 p.m. 1tc

FOR SALE — Concertone tape recorder 7.5-15, also a set of encyclopedia Britannica, Phone JE 4-4127. 1tc

FOR SALE — 1954 Mercury 4-dr. Monterey, 2-tone blue and white, automatic transmission, power steering, power brakes, power seats, windshield washers, back-up lights, new tires. Phone JE 6-5355. Can be seen any time during day all week at 717 Davidson Road. 1tc

WHEN TERMITES swarm, call Andy's Pest Control, Phone JE 2-5073 or JE 6-3910. tfc

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20 acres, 4 room house, barn, on paved road 4 miles East of Hartselle. \$5500.00

2 acres, 5 room house and 2 room house, chicken house, plenty large pine trees. \$5250.00

406 Short St. Brick veneer 8 rooms, bath, large lot, paved street, already partly financed. \$13,500.00

505 Short St. 5 large rooms, bath, garage, plenty shade. Immediate possession. \$7850.00.

College Street, 3 bedrooms, bath, living room, dinette & kitchen. \$4500.00

Hiway 31, 1 acre, New home with living room, dining room, kitchen, 3 bedrooms, carport, electric heat, plenty large shade trees. \$10,500.00

St. Clair St., 4 rooms and bath. \$5000.00 ½ financed.

302 Rock St., 6 rooms, bath, large lot. Only \$4500.00

522 E. Main St., 6 rooms, hall, bath, garage. \$7500.00

50 acres, modern 3 bedroom home, double garage, 40 x 60 concrete block barn. All fenced with pool in pasture. 2 miles West of Hartselle.

305 acre farm with 4 sets of buildings, 50 acre cotton allotment, paved road on 2 sides, near good school and churches.

1802 Tower Ave. Decatur, 5 rooms and bath. Only \$4000.00 Near Falkville, New 5 room house with one acre. \$5700.00 Plenty good building lots.

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AN HONOR AND CONGRATULATIONS—Stuart Jones (left), chief of the Civilian Personnel Office for Redstone Arsenal, receives congratulations from Robert Willey director of Civilian Personnel, Department of the Army, who was visiting the post last Friday when Jones was awarded an Outstanding Performance rating and Sustained Superior Performance Award.

The weather reporter was describing his wife: "She speaks up to 150 words per minute and gusts up to 180." "Did your watch stop when it dropped on the floor?" "Sure, did you expect it to go on through?"

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THOUSANDS OF CONTRACTORS PLAY ROLES IN EXPLORER III LAUNCHING

Thousands of industrial fabricators and suppliers from coast to coast were involved in the building of the Jupiter-C missile that successfully launched the Army's Explorer III scientific earth satellite.

Unlike the missile that placed the free world's first satellite in orbit Jan. 31, this Jupiter-C was largely the product of American industry.

The Explorer I missile was primarily the work of the Army Ballistic Missile Agency. The Agency, with the assistance of the Jet Propulsion Laboratory of Pasadena, Calif., was responsible for the two satellite launchings. ABMA provided the main stage of the missile and JPL furnished the high-speed upper assembly.

The contractors who contribute to the Army's Redstone and Jupiter missile programs figured more prominently in the launching of Explorer III. A modified version of the Redstone became the main stage of the Jupiter-C.

Prime contractor for the Redstone is the Chrysler Corporation of Detroit. More than 2,000 suppliers in 37 states contribute to Army work being done by Chrysler, which includes the production of the Jupiter intermediate range ballistic missile.

Components of the Jupiter-C's 56-foot first stage (booster section), which propelled the missile up more than 250 miles, were provided by Chrysler's Missile Plant near Detroit. The company employs 5,400 persons at its Michigan plant and 600 at ABMA.

The Rocketdyne division of North American Aviation, Inc.,

produced the liquid-propelled power plant of Jupiter C's main stage. This engine was built for the Redstone and modified for the role of satellite launcher. The Rocketdyne engine has been in production since 1952.

Hydne, the unique high-energy fuel employed in the Explorer launchings, was also developed by Rocketdyne on the request of

the Army Ballistic Missile Agency. Rocketdyne scientists point to the development of Hydne as indicative of the additional power to be gained from liquid propellants.

The nature of the new propellant is still secret. The standard Redstone engine is a single-chambered unit which generally uses the combustion of liquid oxygen and alcohol.

The Jupiter-C's ballistic shell was fabricated at the Reynolds Metals Company Missile Plant at Sheffield, Ala. Using designs developed by ABMA, Reynolds technicians built the tail section, center section which contained the fuel tanks, the nose section of the

main-stage holding guidance and control mechanisms, and the spin launcher for the upper stages.

Reynolds joined the U.S. Army missile effort in 1952 and has been engaged in the Redstone program since. The company has constructed a number of Jupiter-C ballistic shells, for the Explorer III launching and for nose cone re-entry tests. Like others involved in the Redstone-Jupiter-C production, Reynolds is a sub-contractor to the Chrysler Corporation.

Some of the guidance and control components of the Jupiter-C are the same as those for the Redstone and Jupiter ballistic missiles. Ford Instrument Company,

a Division of Sperry Rand Corporation, is the prime contractor for the guidance and control systems of these missiles.

Redstone and Jupiter guidance systems are being mass produced in the Ford plant at Long Island City, N. Y., and at the Sperry-Farragut Division of Sperry-Rand at Bristol, Tenn.

All of the major suppliers in the Jupiter-C's production worked closely with the Army Ballistic Missile Agency in preparation for the firing. Each of the prime contractors had scores of sub-contractors contributing to the effort. In many cases, the delivered product was modified by ABMA for this specific Jupiter-C flight.

Development Operations Division Reorganized

The Development Operations Division, largest segment of the Army Ballistic Missile Agency, has been reorganized to handle the expanded programs involving missile weapons systems and scientific outer space research.

Maj. Gen. J. B. Medaris, who commanded the Agency before becoming Commanding General, U. S. Army Ordnance Missile Command, on April 1, approved the reorganization which was recommended by Dr. Werner von Braun, director of the Division. Brig. Gen. J. A. Barclay has succeeded Gen. Medaris as ABMA commander.

A tenth laboratory has been established, taking over the functions of the Research Projects Office of which Dr. Ernst Stuhlinger was chief. Dr. Stuhlinger will be the laboratory director.

The other Laboratories and their directors are:

Test, Karl L. Heimbarg, Aeroballistics, Dr. E. D. Geissler; Computation, Dr. Helmut Hoelzer; Guidance and Control, Dr. Walter Hausserman; Missile Firing, Dr. Kurt Debus; Systems Analysis and Reliability, Erich Neubert; Structures and Mechanics, W. A. Meazek; Systems Support Equipment, formerly Launching and Handling, Hans Huetter; Fabrication and Assembly Engineering, formerly Fabrication, H. H. Maus.

Branches have been established as a new level of organization immediately below the Laboratory level. This permitted grouping of operating sections with closely related functions or related fields of interest.

Project directorships were also established. Arthur Rudolph became Project Director for the Redstone Ballistic Missile, soon to be deployed overseas as the Army's largest and most powerful weapons system, and for the Pershing Ballistic Missile, for which a development contract was recently awarded.

K. K. Dinnenberg, former chief, Technical Liaison Office was appointed Project Director for the Jupiter Intermediate Range Ballistic Missile, now in production and destined for operational employment by the U. S. Air Force.

A young lady was passing the hat at a religious meeting. She asked in front of a Scotsman and said: "Won't you give me six-pence for the Lord?"

"How old are ye, Lassie," asked the Scotsman.

"I'm 23," she replied.

"Well, I'm nearly 73 and it's rare likely I'll see the Lord afore ye, so I'll give it tae Him meel."

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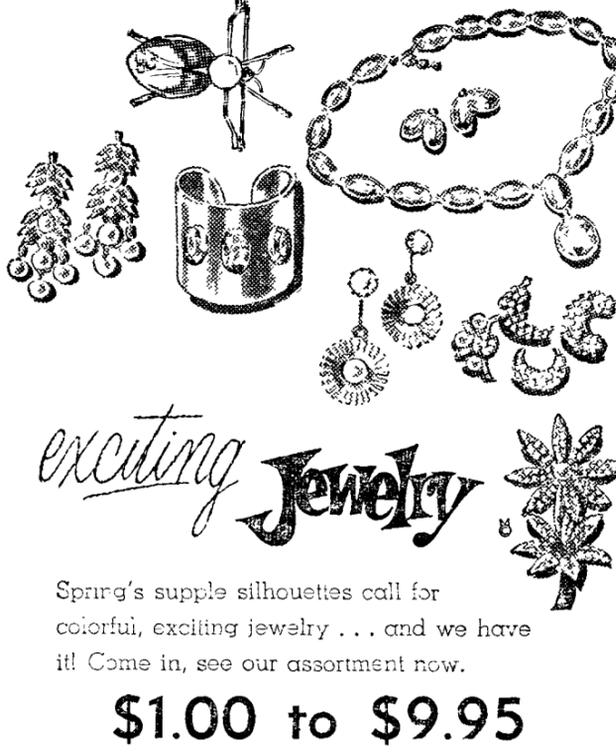


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