RRS NEWS

FOR THE ADVANCEMENT OF
ROCKETRY AND ASTRONAUTICS

98

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REACTION RESEARCH SOCIETY NEWS

FOR THE ADVANCEMENT OF ROCKETRY AND ASTRONAUTICS

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of the

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R.R.S. NEWS Number 98 Winter-Spring 1965

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Meeting Notice

Meetings at the New Meeting Place and Workshop are announced by postcard. If you have not been receiving these each month notify the Secretary. Story page 7.

Subscriptions

All active subscriptions will automatically be extended to apply on future issues. Difficulties and delays of the past year are being met with efforts to improve and continue regular plublication.

Subscription rates are: Single copy 50¢, Yearly $2.00

--A Brief History of the R.R.S. Since 1943--

The Reaction Research Society was first known as the Southern California Rocket Society. It was formed on January 6, 1943.

The Society was reorganized on March 17, 1943. This was really the beginning of the Society. Since before this date no records were kept. One of the first things done was to change the name of the Society to the Glendale Rocket Society. Many of the first small black-powder rockets were quite unsuccessful. The lack of information and available commercial black-powder was the main drawbacks.

In September 1943 the micro-grain propellant as we know it was first accidentally discovered. Zinc dust and Sulphur was added to the ingredients used then, for making black-powder. Gradually only zinc dust and sulphur was mixed and tried. This powdered zinc and sulphur was not seriously used until a considerable time later.

On March 31, 1946, the Glendale Rocket Society changed it's name to the Reaction Research Society.

The first Rocket Mail Flight was held on June 28, 1947, from Winterhaven California, across the Colorado River to Yuma Arizona. Two rockets were fired, each carrying 350 mail covers-- the first rocket exploded into the Colorado and the second was successful.

On October 26, 1947 at Palmdale a ten-foot micro-grain rocket was fired and rose to an altitude of over a mile-- setting a [illegible] record.

Another Rocket Mail Flight was made March 27, 1948. It was from Inyo County, across Searles Dry Lake to Trona. Eight rockets were fired. It is believed that the 8 rockets carrying 4230 covers constitute the largest rocket mail flight ever held.

Rockets and designs for an orbiting satellite were taken up in 1948.

In 1949* there was indecision about starting experiments with a new type of liquid propellant rocket. Because of this some of the members left the Society to start another one.

On May 14, 1950 a mono-propellant hydrogen peroxide rocket was fired and made a record-breaking altitude of 23,500 feet, for Amateur Rocketry. The builders Dave Elliot and Lee Rosenthal were honored with an award by the American Rocket Society. A complete report was published on the development and testing of this Hydrogen Peroxide Rocket.

Static Acid-ammonia rocket testing, April 5, 1953, The fuel, red fuming nitric acid (HNO_3) with liquid ammonia (NH_3) gave a thrust of 180 lbs., for a 48 second duration.

cont.

The first attempts of igniting a tar-perchlorate restricted burning rocket was made February 7, 1954.

In Chicago July 4, 1954, when the American Astronautical Federation was founded, The R.R.S. had a representative, Mr. Zaerhinger.

The March issue of the R.R.S. NEWS in 1955 gave the announcement of buying the new 40 acre test area, 35 miles north-east of Mojave, with joint ownership with the Pacific Rocket Society.

The April 13, 1958 Public Rocket Launching was the largest and most successful consumation of 15 years of rocketry. Approximately 600 people were present. Fair weather and 15 rockets gave everyone a busy and enjoyable time.

In 1959, as a renewal of Rocket Mail Flights a special type of smaller mail carrying rocket was used. There were only 480 covers flown in the 20 flight rockets. Date of flight was December 31, 1959. This was the 3rd R.R.S. Rocket Mail Flight.

Again in 1960 on the 21st day of May, 680 covers were flown in the R.R.S. 4th Rocket Mail Flight. A new type of parachute recovery system was used. Malfunction in rocket 1 resulted in some damaged rocket mail covers.

The 5th R.R.S. Rocket Mail Flight was conducted in the vicinity of Randsburg, California. During the early dawn on May 27, 1961. 2000 Rocket Mail Covers were flown by rocket. They were completely stamped and delivered to the Post-mistress, of the mining town of Randsburg, California.

For the later 6th and 7th R.R.S. Amateur Rocket Mail Flights a more complete description will follow on the next pages. These last flights culminate 17 years of Pioneering in experimental rocket mail.

Look for new experiments in 'Long Range Rocket Air Mail' by the R.R.S. in the future. Back in 1947 visions of accomplishing a rocket mail flight from Los Angeles to San Francisco were given. There is yet time in which to prove such a feat possible. Even in the Pre-satellite days the R.R.S. had plans and drawings of an Amateur 4 stage rocket in which to put up a small orbiting vehicle 200 miles above the earths surface.

* Editors note-

The above is a condensed history of the Reaction Research Societies activities. The limited number of Rocket Mail Flights are officially R.R.S. Some of these have been claimed by an independent and offshoot group not connected with the R.R.S. since 1949.

POST-FIRING REPORT: MAY 3, 1964

On May 3, 1964, the Reaction Research Society participated in a joint rocket firing with the Pacific Rocket Society and the rocket group from Chaminade Preparatory. Due to our insurance problem, we had held no firings for the previous two years. The primary purpose of the firing was to allow the groups to re-familiarize themselves with firing procedure and to acquaint new members with these procedures.

The two weekends prior to the firing were spent rebuilding bunkers and generally preparing the area for the firing. The railroad tie reinforced spectator trench was covered with a new roof of telephone poles. This covered trench is sixty feet long and offers overhead protection for up to forty spectators. Materials for an additional fifteen foot section are at the site, and a work party is planned in the near future for its construction.

There were approximately fifty persons present at the firing representing members of all three groups. The temperature was about 65 degrees Farenheit, and the sky was cloudless. There was a strong wind from down range which helped to keep the temperature down.

Five rockets were fired; three by the Pacific Rocket Society and two by the Reaction Research Society. A brief description of these rockets will be found in the table below.

Firing Order	Society	Outside Diameter	Motor Length	Estimated Altitude
1.	PRS	1.37"	60"	2500 feet
2.	PRS	2.00" 1.25"	35" 29"	650 feet didn't fire
3.	RRS	4.00"	67"	1500 feet
4.	RRS	1.25"	36"	400 feet
5.	PRS	2.50"	67"	4000 feet plus

The rockets fired by the PRS all used micrograin which was 70% zinc and 30% sulfur by weight, and all contained phosphorous in the nose sections. The first PRS rocket contained a parachute, but the 'chute came out before the peak altitude of 2500 feet. The phosphorous ignited and left a moderately dense smoke trail for visual tracking. The second PRS rocket was a two stage rocket, but the upper stage did not ignite. The lower stage carried the upper to an altitude of about 650 feet, with no separation. The phosphorous in the nose section did not burn properly, but was discovered to be smoldering when the rocket was recovered. The phosphorous and the micrograin were removed from the upper stage and destroyed. The third PRS rocket performed very well. It had reached about 4000 feet when it disappeared from sight, and was not recovered.

The RRS fired two rockets using stoichimetric micrograin. We had not used this mixture before, and wished to test it. The smaller rocket was made of thin walled aluminum tubing, and was equipped with a ceramic nozzle. This rocket burned through in two places to form three separate pieces, the largest of which was the upper portion which rose to an altitude of 400 feet. Unfortunately, the lower piece containing the ceramic nozzle, was not recovered, so we don't know how the ceramic was affected by the micrograin.

The larger rocket fired by the RRS was a prototype of the mail rockets to be fired on July 25th. This rocket was fired to test two major components; the propellant, and the peak ejection system. The propellant, as previously mentioned, was a stoichimetric mixture (67% zinc to 33% sulfur).

The motor section was 6 feet long by 4 inches outside diameter with a wall thickness of 0.065 inch. The nozzle had a throat diameter of 1.254 inches and was equipped with a burst diaphragm. The fins were made of 0.032 aluminum, folded double over the top and filled with 1/8 inch plywood held in place by polyester resin. The instrument section and nose were 51 inches long and weighed 16 pounds. The rocket weighed a total of 27 pounds empty and contained 65 pounds of propellant packed to a density of 0.087 pounds per cubic inch. The mass ratio of the rocket was 3.40.

The ejection system was built to trigger at turn over. The photocells at the tip of the nose cone were designed into a circuit to keep the ejection squib from firing until the light intensity was reduced to a predetermined point. This reduction in light intensity would be reached when the rocket reached a maximum altitude and turned over.

Neither the propellant, nor the ejection system received a fair test because of the following sequence of events during the flight. As the rocket rose in the launching rack, the leading edge of the fins dragged against some part of the rack causing them to warp. Upon warping, the plywood stiffeners in the fins were popped out and lost. The wind caused by the increasing velocity of the rocket, wrinkled the fins to a great extent, increasing the drag considerably.

The fins hanging up on the launching rack, and the wrinkling of the fins, caused the rocket to pitch. The pitching, in turn, wrenched the heavy instrument section from the top of the rocket, breaking the wires between the electronic section and the ejection squib. The parachute deployed, and then, because of the high velocity of the rocket, ripped free from the bulkhead by which it was attached to the instrument section. The parachute and the instrument section fell independently, while the rocket motor continued its trajectory to a maximum altitude of 1500 feet.

It was discovered, upon recovery of the rocket, that the ejection squib had not fired, proving that a premature firing of the ejection system did not occur.

It is apparent from the performance of this rocket, that several design details will have to be altered in order to avoid the same problems in the mail rocket launching.

In spite of the poor performance of the rockets fired, those present at the firing considered their time to be well spent. Firing procedures were demonstrated to new personnel and found to be quite effective. New equipment was tested, and the new bunkers drew many favorable comments from the old members of the groups.

Submitted by Maryann Butterfield

POST-FIRING REPORT: JUNE 27, 1964

The Reaction Research Society, on June 27, 1964, held a rocket firing, the primary purpose of which was to re-test the prototype mail flight rocket.

The rocket incorporated two modifications upon the design of the previous test vehicle. The first was in the ejection system, which was redesigned to allow firing early in the day. Rather than placing the photocells in the nosecone, they were placed, facing rearward, in four small fins. As the rocket was to reach peak altitude, it would point away from the sun, exposing the photocells to the sunlight. The current generated by the photocells, amplified would fire the separation charge.

The second modification was in the form of a forty-foot cord connecting the instrument section and rocket motor after separation. This arrangement was to give the instrument section and motor a fairly rapid rate of descent, until the motors impact. At this time, the load on the parachute would be considerably reduced, providing a fairly soft landinf for the instrument section.

The rocket motor was similar to the previously used unit, with the exception that the combustion chamber was shorter (48 rather than 67 inches). The 35 pounds of capsulated micrograin propellant was 82% zinc, by weight. The fins were a single thickness of 12 gauge cold-rolled steel. The overall length of the motor, instrument section, and nose cone was 104 inches.

At the time of the firing, (10:30 AM), the temperature was approximately 95° F., and the wind was light. The rocket had a smooth trajectory, the instrument section separating at the peak. The motor section snapped the forty foot cord (550 pounds test), and experienced some instability at that moment, but regained stability before impact.

The total flight time of the motor was 22.0 seconds, the rocket attaining an altitude of approximately 1500 feet. The rocket motor landed about 1200 feet down range (West) on the launcher. The instrument section descended by parachute, landing about 1300 feet

North of the launching rack. The duration of descent was about 4 minutes, allowing the instrument section to land undamaged.

The two modifications seem to have received fair tests in this firing. The photoelectric ejection system performed well and will be adopted for use on the coming mail flight. The cord connecting the motor and instrument sections was found to be unsatisfactory due to the inertia of the motor section. As a whole, this firing proved to be a valuable experiment.

Submitted by Dennis Shusterman

Central Meeting Place and Workshop Announcement

It is with a great deal of pleasure that the Reaction Research Society announces that on January 15, 1965, the Society acquired the use of some very fine facilities for a central meeting place.

The new quarters are located at 2401 W. 135th Street, Gardena; right next to the Gardena Fire Department Headquarters. The facilities consist of a fenced compound and and two medium sized buildings with adequate parking and a large paved area. The smaller building (about 20 X 30 feet) will be used as a meeting place and office. The larger building will be used as a shop, storage, and assembly area.

It took some 8 months to locate the owners and obtain permission to use the property. Our use of the property will be in exchange for cleaning up and maintaining the area.

Considerable work has already been accomplished in cleaning up the debris and making the compound secure. Quite a bit of damage had been inflicted on the buildings during the period that they were unoccupied. All of the interior wallboard in the small building was stripped and all windows in both buildings were broken.

Work is rapidly progressing on removing the remaining trash, clearing the walls for wallboard, and preparing the window frames for new glass. Many small projects remain to be done, but it is ready for meetings at any time. Some furnishings will be required and all members are invited to inspect the facilities and donate whatever furnishings they wish. Chairs, tables, desks, cabinets and physical labor are needed; and for the next few weekends there will probably be some work crews at the site so it can be entered.

This will be an ideal place for holding meetings and planning field trips to the Mojave Test Area. The facilities will also be useful for holding training sessions and will be available for a certain amount of assembly and fabrication of projects. We are most grateful to the owners, who prefer to remain unpublicized, for their generosity.

R.R.S. SIXTH MAIL FLIGHT-POST FIRING REPORT

In December of 1963, the Executive Council of the Reaction Research Society decided to conduct the Sixth R.R.S. Mail Flight. There were two main reasons for the flight: First, and most important, to act as a unifying force in the Society and to stimulate interest within the group; second, to raise funds in anticipation of our flight insurance premium.

The flight was originally scheduled for July 25 near Las Vegas, Nevada, and advertisements were mailed. However, subsequent difficulties led us to relocate the firing to our Mojave Test Area on the same date. The necessary addenda to the advertisements were mailed, and the Society members began construction of the Mail Rockets.

After many hours of labor, the rockets were finally completed. We drove out to the Test Area on the night of thursday, July 23. Friday was spent mixing propellant, loading the rockets, adjusting the launchers, packing parachutes, and typing out last minute cover orders. Work continued all of friday night.

Just after dawn on Saturday the ejection systems were to be adjusted. However, the circuits exhibited instability and the circuits for rockets 1 and 4 were re-wired to actuate after a fixed time delay.

At approximately 7:30 a.m. rocket number 2 was in the launcher and ready to go (rocket number 1 was still being readied). All personnel took cover and the count-down was begun. The rocket rose about six feet and then exploded violently within the launcher. The payload section was blown clear by the explosion and traveled perhaps two hundred feet upward and about the same distance down range. The steel mail cannisters protected the covers and all were recovered without damage. The launcher was totally destroyed.

With a great deal of apprehension rocket number 3 was loaded into the stand-by launching rack. At approximately 8:15 a.m. it was fired. The rocket rose smoothly to approximately 3500 ft. The mail cannisters protected the covers to a great extent, but a few were damaged with a hard landing. All covers were mailed.

Rocket number 4 was launched at 9:00 a.m. The rocket was damaged by a burn-through just above the nozzle. Lateral thrust, caused by the burn-through, threw the rocket into a violent pitch, which snapped the mail section off the rocket motor. The payload and the motor continued along nearly parallel trajectories, landing within about a hundred feet of each other. Again, the cannisters saved most of the mail from damage, although a few covers were creased.

After a long struggle, rocket number 1 was finally readied and fired at 10:00 a.m. It rose with a relatively high acceleration, burning out at a much higher altitude than any of the previous rockets. It coasted to better than a mile altitude. The time delay ejection system failed again and the rocket plummeted to earth more than a mile down-range. The rocket drove the mail cannisters about 3 feet into the ground, distorting them greatly and ruining the covers within them.

Covers from rockets number 2,3 and 4 were rushed to the China Lake Postoffice and were mailed directly to those ordering them. Those covers destroyed in Mail Rocket number 1 were substituded with equal covers from other rockets. The undamaged covers were finally removed days later and mailed to the addressees un-postmarked.

The firing effort in the experimentation with new devices was quite successful. Most of our members participated well in the work involved. The firing helped create a new degree of interest in Rocketry.

We would like to express our appreciation to the following non-members for assistance and advise generously given in the course of our Sixth Rocket Mail Flight. They are: Russel Johnson Paul Nimmons, L.R. Bown, Perry Zwisler, William Peters, Helen Miller, Robert Boudum, Mr. Fisher, Huerth, T. Gates, Mc Niel, L. Shusterman, O'Niel, Mc Nicholl, Mc Keman, Ray Stagner, and the Chaminade Prepratory Group.

Description of Picture Page

Upper left: Limited flight and explosion of Mail Rocket No. 2.

Upper right: Extreme high altitude flight of Mail Rocket No.1

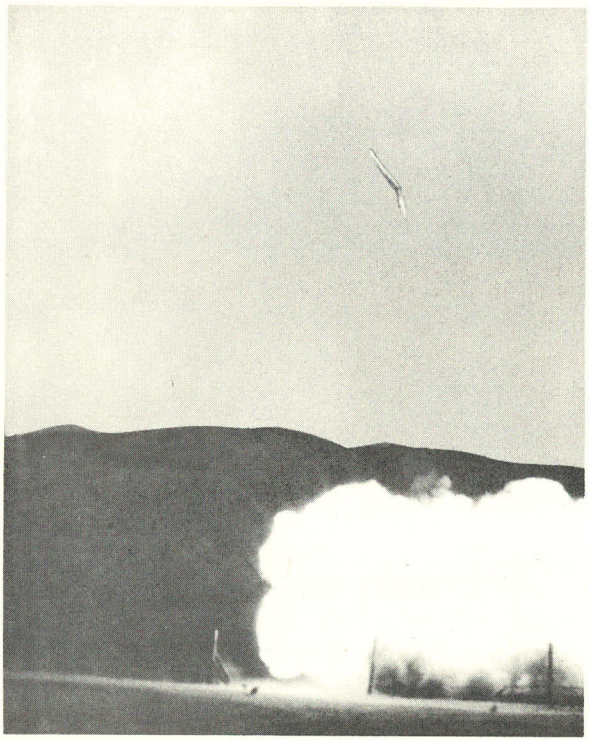
Lower left: Mail Rocket No.4 in which the burn-through resulted in the violent pitch angle shown.

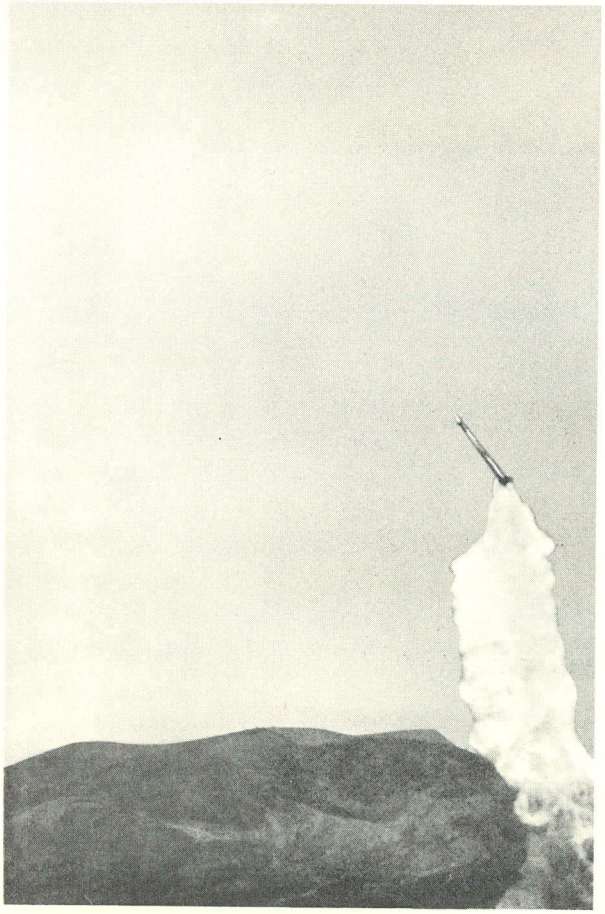
Lower Right. The New R.R.S. Central Meeting Place and workshop. Description is on page 7.

Acknowledgements--- For rocket pictures, Ray Stagner.

For the fine picture of the R.R.S.

workshop, Richard Butterfield.






REACTION RESEARCH
SOCIETY

Seventh Rocket Mail Flight

In mid-July, 1964, the Reaction Research Society learned that an 8¢ airmail stamp was to be issued in honor of Dr. Robert H. Goddard. Investigation revealed that its first day of issue would be on Dr. Goddards birthday (October 5) in Roswell, New Mexico, where Dr. Goddard performed many of his rocket experiments.

At the time the information about the stamp was received, the RRS was engaged in the preparation for the Sixth Mail Flight, to be posted from China Lake. The executive council considered the abandonment of the China Lake firing, in favor of the later shoot at Roswell, but it was decided to continue with the sixth firing as scheduled.

After the sixth flight (July 25) the executive council voted to undertake the Goddard flight at Roswell. In mid-August, a party of three members drove to Roswell to make the necessary arrangements for a rocket launching. Everyone consulted in Roswell was most helpful, and by dusk that day a launch site had been selected and the necessary clearances for its use had been obtained. The firing area chosen was the exact spot that Dr. Goddard had used in his tests.

The preliminary design for the mail rockets was made during the drive back to Glendale. Drawings were made, and a prototype rocket was fabricated. A dummy payload was put into the cargo space and the rocket was test fired at the Mojave Test Area. The rocket met most of the design specifications. It burned for approximately one-half second, the payload separated from the booster just after burn-out and both sections achieved altitudes of a little less than a thousand feet with a range under a quarter mile.

The covers and stamps were sent out for printing and the construction of the rockets was begun. Six rockets were built; five for the covers and the sixth as a "stand-by" in case of trouble with one of the assigned rockets. The rockets were finished just a few days before departure. A multitude of details were completed in the last two or three days, and finally - off to Roswell.

Roswell was reached some twenty hours and one thousand miles later. After arriving at the test site, a preliminary survey of the range was conducted. Back at Roswell, a motel room was rented and after dinner, the covers were loaded into the payload sections and the nose cones attached. Later that night, the crew drove back out to the test site, and set up the two special launching racks. Two of the crew slept on site that night as guard against the range cattle in the area.

Early the next morning (Sunday) the range flags, the tracking station, and the control point were set up. Two of the crew went into town for the stamp dedication ceremony, while the other three loaded and prepared the rockets. Again that night, two slept on site.

At 3:00 A.M. Monday, having assembled at the control point for a briefing, job assignments were delegated. Dawn broke at about

6:00 o'clock and final preparations were made to fire the first rocket.

Making the usual careful search for aircraft, the count-down began for rocket number one. The knife switch was thrown at zero but the rocket failed to fire. Misfire was called, and after a safe time, the circuits were examined, contacts were firmed up and a new count was made. The rocket still did not fire. The leads were disconnected from the rockets' ignition squib, and a new separate igniter was tested at a safe distance from the launching area. It fired at once. Rocket number two was connected and launched; numbers three and four followed. Between firings, the igniter in rocket number one had been replaced so rocket one was fired fourth. Rocket number five was fired on schedule. The rockets had been recovered one by one between launchings and the covers were removed as the payload sections were returned. The stand-by rocket was to be fired with an empty payload section. At t = 0, the rocket was seen to burn on the pad for a few seconds, then to explode with considerable violence, destroying the launching rack.

The site was cleaned up, and everything was loaded into the trailer. Departure from the launch area was at 7:30 A.M.

The Goddard stamps were purchased at the main Roswell Post Office and the crew returned to the motel room. Most of the day was spent affixing the commemorative stamps to the covers, and sorting the covers as to destination. The covers were posted at about 4:00 P.M. Monday.

The trailer was packed, and after 4 hours of sleep, the crew left Roswell for home.

In view of the weeks of tedious preparation, coupled with the long drive and exhausting schedule, all agreed, "never again - until next time."

Submitted by Richard Butterfield

FIRING CREW:

Maryann Butterfield: tracking and photography.
Richard Butterfield: coordinator and arming.
Donald Girard: loading, firing and communications.
Edward Parker: payload recovery and removal.
Dennis Shusterman: ejection system preparation and arming.

PERFORMANCE OF ROCKETS

Rocket No.	Fired	Altitude Feet	Range Feet	Remarks
1.	Fourth	680	795	Performance as expected. Landed hard, a few covers wrinkled.
2.	First	920	535	Payload did not separate; it crashed wrinkling most of the covers. A very few covers were recovered undamaged.
3.	Second	900	610	Performance as expected. Landed hard, a few covers wrinkled.
4.	Third	1050	420	Pitched a little leaving the launcher, otherwise okay.
5.	Fifth	800	680	Performance as expected.
6.	Sixth			Stand-by rocket, fired with no payload. Exploded violently, destroying itself and the launching rack.

NOTES:

Rockets 1, 2, 3, 5 and 6, all burned in the rack for one to four seconds before moving. Rocket number 4 accelerated immediately upon ignition.

FIRST DAY ROCKET MAIL

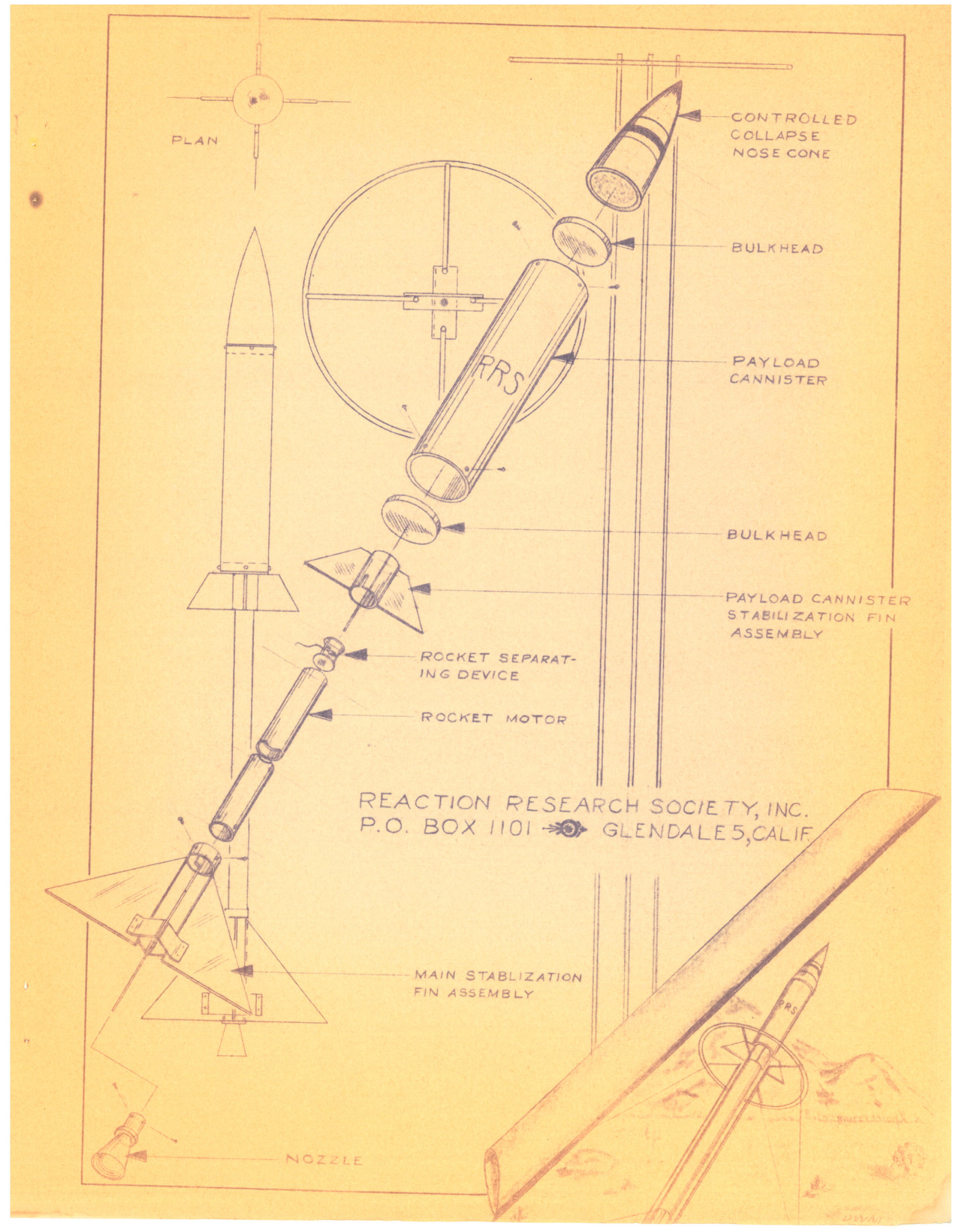
The Reaction Research Society has available some of the rocket flown covers from its Seventh Mail Flight. These covers were flown at Dr. Robert H. Goddards original New Mexico test site on October 5, 1964, Dr. Goddards birthday.

Printed upon each cover is the number of the rocket in which it was flown. Each cover has a souvenir rocket stamp, either perforated or imperforated, attached to the left side, and a government stamp in memory of Dr. Goddard attached to the right side. The covers are postmarked "Roswell, New Mexico, October 5, 1964," the first day of issue of the government stamp.

Full sets of ten covers, as well as single covers, are still available. A Seventh Mail Flight order blank can be found elsewhere in this issue of the RRS NEWS.

DESCRIPTION OF THE SEVENTH MAIL FLIGHT ROCKETS

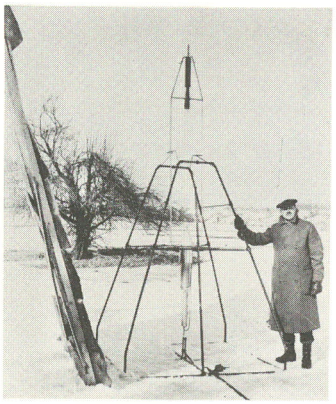
NOSECONE	Shell: fiberglass and polyester resin Filler: polyurethane, foamed in place
PAYLOAD	Cannister: 5" OD x .042" wall x 24" long Aluminum tubing D6061-T6
	Bulkheads: 3/4" exterior plywood disc 4.91" D. 12 gauge cold rolled steel 5.00" D. Screwed to each other. (2 each)
	Stabilizer: fins, 18 gauge cold rolled steel (4) steel tube, 2 3/8" x .180" wall x 4" long Fins welded to steel tube, this assembly welded to the steel half of the lower payload bulkhead.
SEPARATION DEVICE	Safety: Single pull single throw slide switch. Actuator: Honeywell mercury switch. Power: AA Everready battery Frame: Two .05" Aluminum discs 1.75" D.
MOTOR	2" OD x .065" wall x 48" long 1015 seamless steel mechanical tubing
	Bulkhead: 1.875" D x 5/8" thick cold rolled steel welded 2" from front of motor tube
	Nozzle: .932" throat D. 2.670" exit D. 60° total entrance angle. 30° total exit angle. machined of cold rolled steel secured by 4 $\frac{1}{4}$-20 Allen buttonhead capscrews
	Fins: .040" Aluminum alloy. Riveted together by the braces. Held at the top by a strap and at the bottom by the nozzle retaining screws.
PROPELLANT	Micrograin, 67% Zinc 33% Sulfur
BURST DISC	.01" cold rolled steel, 1.75" D.
IGNITER	U. S. Flare model MI A1
LAUNCHER	Hoop: 3/4" D. thinwall conduit Struts: 3/4" D. thinwall conduit (4) Rails: $\frac{1}{2}$" pipe (4) Base: $1\frac{1}{2}$" x $1\frac{1}{2}$" x 1/8" x 8" angle iron (2) Guys: 1/8" steel cable (3)


PLAN
CONTROLLED COLLAPSE NOSE CONE
BULKHEAD
RRS
PAYLOAD CANNISTER
BULKHEAD
PAYLOAD CANNISTER STABILIZATION FIN ASSEMBLY
ROCKET SEPARATING DEVICE
ROCKET MOTOR
REACTION RESEARCH SOCIETY, INC.
P.O. BOX 1101 GLENDALE 5, CALIF.
MAIN STABLIZATION FIN ASSEMBLY
NOZZLE
RRS

FIRST DAY ROCKET MAIL COVERS

REACTION RESEARCH SOCIETY, INC.

SEVENTH ROCKET MAIL FLIGHT



DR. ROBERT HUTCHINGS GODDARD

"The father of modern rocketry"

1882 - 1945

In commemoration of the birthday of Robert H. Goddard, American rocket pioneer, the Reaction Research Society, on October 5, 1964, will hold its Seventh Rocket Mail Flight. The flight will be held at Dr. Goddard's original New Mexico launching site, north of Roswell.

Five rockets will be flown, carrying a total of 4,000 covers. The covers will be mailed with the Robert H. Goddard commemorative airmail stamp on the first day of issue at Roswell. Each cover will be marked with the number of the rocket in which it is carried.

The covers will be available both with perforated and imperforated rocket stamps. Souvenir sheets of two unflown rocket stamps will also be available, both perforated and imperforated. Additional items are sets of two souvenir sheets (one perforated and one imperforated) and sets of ten first day rocket mail covers (one with perforated rocket stamp and one with imperforated rocket stamp from each rocket).

REACTION RESEARCH SOCIETY, INC. - BOX 1101 - GLENDALE, CALIFORNIA 91209

ORDER BLANK - RRS SEVENTH MAIL FLIGHT

Mail orders by September 22, to insure direct delivery. Please send the following:

_____ First day rocket mail covers with perforated rocket stamp
@ $2.00 each--- $_____

_____ First day rocket mail covers with imperforated rocket stamp
@ $2.00 each--- $_____

_____ Sets of ten first day rocket mail covers (one with perforated rocket stamp and one with imperforated rocket stamp from each rocket)
@ $20.00 each---$_____

_____ Souvenir sheets of two perforated rocket stamps
@ $1.00 each--- $_____

_____ Souvenir sheets of two imperforated rocket stamps
@ $1.00 each--- $_____

_____ Sets of two souvenir sheets (one perforated and one imperforated)
@ $2.00 each--- $_____

Discounts - 10% for 10 to 19 covers
20% for 20 or more covers
(Applies to covers only)

Total--- $_____

Less Discount--- $_____

Enclosed Please Find--- $_____

Print or type your own address

Name _____

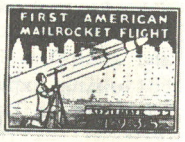
Street Address _____

City _____ State _____ Zip Code_____

rockets

A SHORT HISTORY OF ROCKETRY

by Capt. William H. Peters, Ret.
A S T R O - P H I L A T E L I S T
INTERLACHEN, FLORIDA

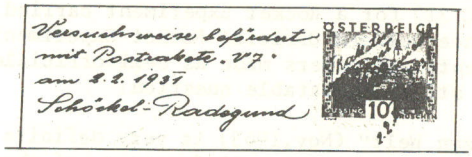


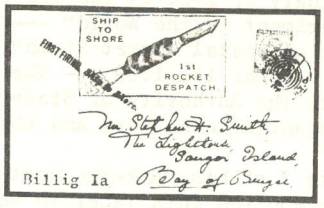
ROCKET MAIL DISPATCHES have definitely become part of modern Astro-philately, since special Rocket Mail Stamps have been used in most experiments and in many cases have been officially approved. The cumbersome Rockets of the "Thirties" have become scientifically designed Missiles, adapted for mail carrying. Like other "Specialty" collecting, ROCKET POST COLLECTING is still a mystery to many Philatelists. Rocket experiments are not new in the United States as they have been carried on by individuals and societies since 1935.

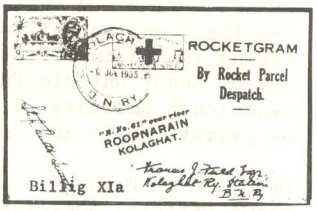
Since the advent of the " REGULUS " Mail carrying Flight of the U.S. Post Office Department from the deck of the U.S.S. BARBERO on June 8th 1959, off the coast of North Florida, public interest has increased enormously and roused the curiosity of all Cover Collectors. When the Navy Public Information Office at the Mayport Naval Air Station, Fla.offered to send commemorative covers of the REGULUS flight to interested citizens a month later, there were over 16000 requests. These covers have become very popular as only 6000 could be sent out by the Navy.

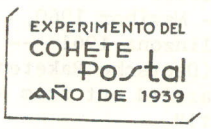
Contrary to popular belief, Rocketry is an old institution. With the invention of gun powder by the Chinese in the 9th century, the Mongols in their conquest of Asia used Military Rockets to obtain their objects. Later the British used War Rockets over 200 years ago when besieging European Cities. In the last century many a shipwrecked crew owed their lives to Rocked fired life lines. First actual delivery of Mail was accomplished by the Austrian Experimenter Ing. Friedrich Schmiedl , who began his experiments in June 1928 and who, in February 1931 successfully carried 102 pieces of Mail in his "V-7" Rocket from Schoeckel to Radegund in Austria. During the Civil War in Spain (1936/39) both parties fired Propaganda Rockets. In April of 1940 the Nazi's used Rockets to distribute leaflets in Denmark to announce the occupation. German V-1 Rockets had an ingenious device which automatically ejected small canisters containing leaflets and letters.

The following countries participated in the pioneer trials and Early Rocket Experiments: Australia with 10 flights, Austria with 31, Belgium 8, Cuba 4, France 4, Germany 9, Great Britain 4, Holland with 14, India and Sikkim 86, Italy 1, Jugo Slavia 3, Luxembourg 1, Mexico 1, Poland 1, Switzerland 3 and 5 in the U.S.A. You may note that the most extensive work was done in INDIA with over 45% of the total of 185 experiments. Most of the earlier flights were made in very small numbers, seldom exceeding a 1000 covers. Cuba in 1939 had four experiments. On October 15th 1939 Cuba issued a specially overprinted airmail stamp (Scott C31) and won the distinction of having created the World's First Official Rocket Mail Stamp.









Since my 1st listing Rocket Experiments in European Countries, many new Rocket covers have come on the market. I pointed out in an article on Official Rocket Experiments which appeared in STAMPS on August 26th 1961, that such experiments were carried on overseas at an accelerated rate. --- In 1961 - 1963 we see Andorra, Denmark, Poland and Sweden as newcomers to the Rocket Field and inaugurate Test Flights for carrying Mail by Rockets. Interest in Rocket Experiments is so immense in Europe, that at the 1961 LUPOSTA EXIBITION in Vienna the German Rocket Company had to fire 10550 Rocket Flimsies for the collectors. Again in 1962 for the Gross Gloeckner experiment 12864 Rockets! These thousands of Rocket Covers are quickly absorbed by eager collectors and are in great demand. Here in the United States there is at this time a new interest in Missile Commemorative Covers, which has lessened temporarily the demand for flown Rocket Covers. The Space Covers which are of course not flown but just Missile Souvenir Covers, will gradually accumulate, little by little, with the almost daily firings from U.S. Missile Firing Facilities. In another Field we have just seen Project MERCURY come to a successful completion. The GEMINI Project is the latest and just over the Horizon. With over 350 First Day Glenn covers indicated from the larger U.S. Cities and many special covers the U.S.Navy had on Colonel Glenn's First Orbital Flight , a Glenn collection alone will be a formidable task to complete for the average collector.... Out on the West Coast the Reaction Research Society in Glendale, Cal. and the Rocket Research Institute in Glendale, Cal. have temporarily curtailed their Rocket Experiments. However the latter Company fired two RRI Night Cargo Rockets on January 1st 1964 which carried 1600 covers and 400 Astro-Notes.

P.t.o.

U.S. Rocket and Missile Covers had their greatest development within the last twenty years, although in 1919 Dr. Robert Goddard, U. S. Rocketeer, became widely known for his research on liquid oxygen and gasoline Rockets, which later formed the basis for liquid fueled Rockets, etc. experiments. Following experiments with liquid fuel in a captured German V - 2 and the Navy "VIKING", serious post WW-II tests began in the Navy Engineering Experimental Station in Annapolis under the guidance of Dr. Goddard. -- The guided Missile with a liquid Rocket Engine Propellant now became a deterrent weapon! The Navy Department developed the "LOON" and in 1947 launched a Missile from the U.S.S. CUSK and landed same at Point Mugu, California. The REGULUS , a later type Navy Missile with nuclear capabilities, did not become operational until 1954.

Five years later, on May 1st 1959 a REGULUS was launched from the Sea Test Range at the Point Mugu Air Strip, flew out over the Pacific Ocean for 65 miles before coming back to MUGU, where the mail was recovered from within the missile (139 pieces).Each cover carried a letter signed by Rear Admiral J. P. Monroe, U.S.N. This mail was the unofficial forerunner of the First Official Missile Mail authorized by the Post Master General Arthur E. Summerfield. Another REGULUS flew 3000 envelopes from the U.S.S. BARBERO from International Waters in the Atlantic to the U.S.NAVAL AIR STATION at Mayport, Florida. According to a signed statement on the back of a F.D. Flag cover, dated July 4th 1960, the U.S. ARMY flew a Test Missile "WILLOW" on that date 409.4 miles in Honolulu, Hawaii for the 108th CIC Group. The certification on the letter was by the C.O. of the Group underneath the typewritten statement. It stated that fortythree (43) covers were flown in this missile.....

In addition to the D.R.G. flown Luposta 1961 and Gross-Gloeckner in Austria, mentioned on page one, the D.R.G. dispatched 8200 covers in 30 small Rockets at NEUMARKT - Steiermark in Austria on Jan. 12, 1963 which are very elusive. Another even rarer Rocket cover is the MARIBOR cover from Jugo Slavia fired on Sept. 18, 1960 of which only 1500 exist. To top all, Switzerland engaged the German Rocket Constructor Gerhard Zucker and the Postal Authorities let him handle all the details of the so called First Official EUROPA ROCKET POST which fired 50853 Rocket Covers at BELLINZONA on November 5th 1961. By arrangement with the nearby Principality of LIECHTENSTEIN and with the assistance of Ing. K.Ehrich 20993 additional covers were mailed from here, of which a small amount was officially franked mail.

Missiles & Rockets reports that the Societa Trasporti Missilistici of Rome, Italy has successfully fired a low-cost recoverable Rocket powered by 10+ quarts of water heated to 333°C. Mail was carried. From a French magazine I note that the P.M. General of France intends to fire an official Test Mail Rocket from Marseille to the Island of Corsica. This day long trip by boat will be reduced to 10 minutes flying time, if the Rocket Test is successful. Another report from abroad: The Republic of Liberia in Africa and San Marino in Italy will attempt Rocket Experiments in the near future.....

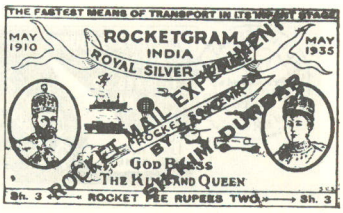
P.S. It is a fact that the Austrian Postal Authorities in Graz supported Ing. Schmiedl's experimental Rocket. His V - 7 test on February 2, 1931 is labeled by Dr. Stephen H. Smith in Billigs Rocket Catalog"the First Rocket Mail Experiment in the World" --- As stated before, to Cuba goes the honor of having issued the "First Official Postal Rocket Stamp" (Scott C 31) for a Rocket Experiment carried out by Senor Antonio Funes on October 15, 1939 --- The difference between Official Rocket Experiments sanctioned and carried out with the Authority of State Governments and others made as semi-officialones by private tests and Rocket Organizations, here and abroad, is still a debatable question!

Mr. Hermann W. Sieger in Volume I of his "Raketen Post der ganzen Welt" (Nov.1963) is very definite about Official Rocket Mail. He applies this label to Rocket Mail as such, when all functions of the Rocket Mail Delivery have been carried out by the proper Postal Authorities. Therefore he list's only 1. CUBA - Havana 1939, 2. U.S.A. - U.S.S. Barbero - Mayport 1959, 3. JUGO SLAVIA - Maribor 1960, 4/5/6. AUSTRIA - the three tests in 1961, 1962 and 1963, and 7. SWITZERLAND - Bellinzona 1961 --- In the 2nd part of Vol.I he has listed 30 Tests (incldg. TR 1 & 2) of the D.R.G. (Deutsche Raketen Gesellschaft) as the most successful Private Experimenter in their Rocket Tests carried out from May 1959 to April 1963. - D.R.G. was recently changed to " Hermann Oberth Gesellschaft!"

CATALOGS: The following catalogs, well illustrated are available POSTFREE to Rocket Collectors.

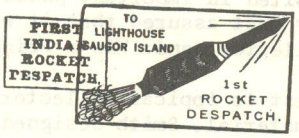
Sieger's Rocket Catalog (in German) Sect.8 + 9of the German Airmail Catalog which covers the period from April 1931 (Tiling) to Nov. 1935 (all the Zucker Starts) with a page on V-1 POW and all Rocket stamps issued for this period. Paper, 19 pages, 1959.		-.50
D t o .	World Space Flights. Astronauts, Sputnicks, Rockets. With Tables of Space Flights, U.S. and Foreign. 74 pages, 1962. Paper cover.	-.75
D t o .	Volume I of the new World Rocket Mail Catalog. Covering all Official Rocket Flights and the D.R.G. Experiments. 59 pages, 1963. Paper cover.	-.75
Billig's Rocket Mail Catalog by Stephen H. Smith. Specialized Vol. #8. 68 pages, 1955.		3.00
D t o .	by Dr. Max Kronstein. D t o . #8A. 25 " , 1958.	1.75
Jal Cooper's India and Sikkim Rocket Mails. A full illustrated page for each experiment flown by Dr. Stephen H. Smith. 92 pages, 1960.		3.75

Short History of Rocketry and all available Price Lists will be sent for 25¢. Deductible.



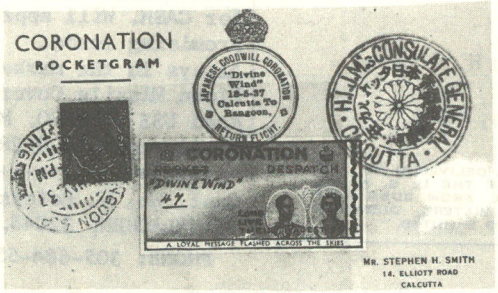
INDIA & SIKKIM
ROCKET DISPATCHES

Capt. Wm H. Peters, Ret.



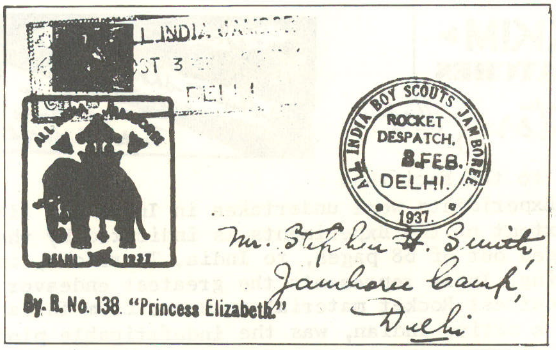
On page one I referred to the fact that about 45% of all Rocket Experiments were undertaken in India and Sikkim from 1934 to 1945. The extent of the Experiments is indicated by the Billig catalog devoting 28 pages out of 68 pages, to India. Therefore, in the small field of Rocket Collecting, India represents the greatest endeavor in these tests and some of the scarcest Rocket material emanates from India and Sikkim. Dr. Stephen H. Smith, a native Indian, was the indefatigable pioneer, who gave to the Rocket Post collectors the most elusive items in this field. His experiments in the State of Sikkim, in the foothills of the Himalayan's, were officially sanctioned by the Maharajah, Sir Tashi Namgyal and in India by the British Authorities. Smith was the sole experimenter, a dedicated resourceful Engineer, who outperformed all other Rocket Pioneers of his time. He was a Scientist, interested in Flight Research, who, unlike many of his prominent competitors, tried diverse propellants and propulsion methods; such as gas propelled rockets, compressed air projectiles, telescopic rockets, ship to shore and shore to ship experiments. He was the first to dispatch messages, live stock, food parcels and medicines; in earthquake and flood disasters for the Red Cross- in Rocket Missiles. -- His so called Rocket Trains were original. By using a series of rockets to propel a Missile faster and further, he created the forerunner of the modern Rocket , which, with Booster Rockets, carries a payload into orbit. Over 25 years ago Smith had the idea of the present 2 and 3 stage Rocket Propulsion. Stephen Smith was a stickler for facts and accuracy for data for his flight experiments. Each of the covers for any particular flight trial were signed by him with his full name. Most of them were stamped with the number of the Rocket fired and with another number indicating the amount of covers carried in the Rocket, and so account for each cover by number, i.e. in a flight of 63 covers, they would be numbered in his own handwriting from 1/63 to 63/63. This is a fact well to remember! - His Rocket Stamps were all personally designed and his first rocket stamps of India are perhaps the most attractive and colorful Rocket Vignettes known. They were printed in limited numbers and any mint stamp not used on experimental covers, bears his initials or his name. Because of these distinctive handwritten marks, no counterfeits of his covers, or reprints of his stamps, have ever been reported. His Rocket Covers and Stamps are rare, they were held down to a minimum and only enough were printed to take care of the overall project for a specific flight. He never commercialized on his experiments! There were no large printings or other attempts to enrich himself. Proofs of his Rocket Vignettes are among todays rarities.

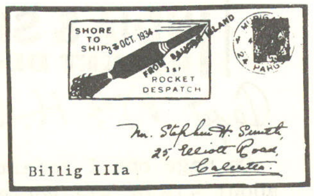
Devoted sincerely to his scientific hobby, he was a philosopher who embellished his Rockets with serious advice or funny annotations. On his War Rocket "Grog-Nee-Gin" #208, there is a paragraph: "Life is a Mirror, the good and the bad seen in others, are hazy reflections of our own". And on the reverse side of the Boy Scout Rocket "Dr. H. Radasch, #136, with the red Scout stamp, he admonishes Patrol Leaders: "Inform all Scouts to beware of White Ants destroying their kit". On the War Rocket "Sub-Silencio #1, with the red and black label, referring to a possible Japanese Invasion, he warns:"This Projectile went off with a Pop! It was just a question to the Jap- Hands up or Die!". Another War Rocket "Joan M. Binns" #264, has the query: "In Aerophilately one is often reminded of the old old story,- the Fox and the Grapes!- I wonder why?". On the Rocket Train "Herbert E. Barber", which carried among other things food samples and two mice, he wrote on a Tea Bag "For Mr. and Mrs. Mousie, to sustain them". - For his young friends, Smith prepared souvenirs of flights from small pieces of the Rocket covering pasted on cards with the stamp used on the flight, with sometimes a little note: "Forlittle Viloo Cooper, from her Aerophilatelic Uncle Stephen H. Smith". From the Rocket # 65 two souvenirs are known, made with small feathers from a fowl carried on this flight and pasted down with the Rocket Stamp. From the Estate of the late Stephem H. Smith, I have had the wrappers from the packages of Tea, Cheese and Sugar, all certified as having been carried on the Rocket Train; with stamps and cancellations. These unique pieces now repose in a Specialized India Rocket Collection, one of the finest andmost complete. The proud possessor has refused thousands of dollars for them.

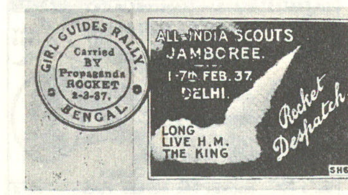


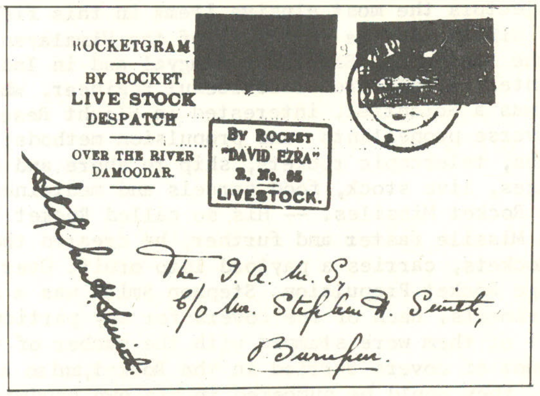
For the Advanced Collectors "WHO HAVE EVERYTHING" and who are now ready for ASTRO-PHILATELY I suggest that INDIA and SIKKIM Rocket Dispatches and Rocket Stamps, are nicely adaptable for a TOPICAL INDIA ROCKET COLLECTION. These Pioneer Rocket covers of 30 years ago, will give him a new interest in life! In such a limited field, with only 86 principal items to built on and to assemble, it will set a new goal for him, which he will be proud to attain.

P. t. o.









Such a collection may be exibited in important philatelic Stamp Shows and the owner may rest assured that it will be the envy of many advanced collector, and: Win a Prize ! -

India is also of great interest to topical collectors of BOY SCOUT and GIRL SCOUT Rocket material. Smith designed four stamps in bright colors for the use of Boy Scouts and Girl Guides activities at the SCOUT JAMBOREE in DELHI, India, in the Spring of 1937. Only 2000 of the Boy Scout stamps an.d 1000 of the Girl Guide stamps were printed. There were many special items availableL Messages of Welcome and of Loyalty, Railway Time Table, colored Equipment Lists and Mail and Propaganda Rockets are among the Worlds most desired collectors items from the Jamboree. These covers , stamps and other souvenirs are even more elusive because they were scattered to the four winds after the departure of the visiting youngsters in the Scout Troops, to their respective Home Countries all over the World. Purchase the new INDIA and SIKKIM Rocket Catalog and see what you have been missing in Rocket Collecting!

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As to increase in value over the years I can tell a little story. In 1945 I purchased over 5000 Pre-World War II Rocket Dispatches from a European source. There were close to a hundred different from four continents. They had to be sold and I priced them from $1.10 to $3.75 for the best Austrian Tests! I put a heading on my Price List to the effect that: " These scarce and interesting Rocket Covers, the Forerunners of a possible Future type of Air Mail Transport, presented an unusual opportunity for investment" ! Many bought and many wished they had bought, later on - Mostly Dealers aquired them ...... My friend, the late Geo Ritter, Founder of the ROCKET MAIL SOCIETY, referred to Rocket Dispatches as "The GOLD MINE SHARES OF PHILATELY". The Rockets I sold in the mid-forties sell now for 15 to 20 times as much. -- No where in any other field of Philatelic Collecting, are stocks of early cover experiments and stamps, so scarce, in comparison with the large supplies available in other fields. The ever increasing demand for Rocket covers will make such stocks even harder to find, with values constantly increasing.Flown Rocket Covers from the Pre-World War II Pioneer Rocket Experiments are very hard to come by now because of the small number of Rockets carried on such starts. Covers from the later period after WW-II are in much better supply and with a correspondingly lower Price Structure.**BUY ROCKETS NOW!**

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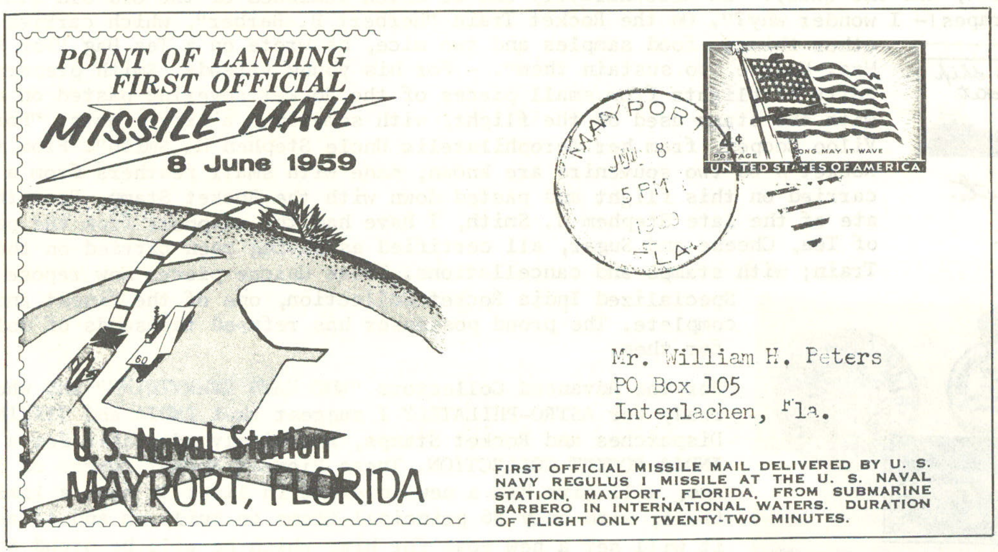

W A N T E D : For Stock!

If you have a surplus of these Souvenir Covers as illustrated on the left of this page, PLEASE ! mail them to me with Your best price. Payment by return Airmail. I also have special interest for U.S. Rocket Collections for CASH. Will appreciate promising leads.
Always in the market for Flown Missile Covers - Need USS BARBERO, MUGU, WILLOW and DISCOVERER XVII

++++++++++++++++++++++++++

Capt. Wm. H. Peters, Ret.
INTERLACHEN, 32048, Fla.
PHONE: 305-684-5591

DEVELOPMENT AND TESTING OF A HYDROGEN PEROXIDE ROCKET

The Reaction Research Society has recently re-printed a reseal paper on the Development and Testing of a Hydrogen Peroxide Rock by David Elliot and Lee Rosenthal. This is the first report on t Reaction Research Society's project for developing a liquid propellant sounding rocket.

The report was honored with an award by the American Rocket Society. It describes the design, construction, and testing of the first liquid propellant rocket to be fired by the R.R.S. The report which is twenty-three pages in lenght, contains four draw and charts, and seven photographs, by Carroll L. Evans Jr. and Richard Schenz.

Since there has become wide use of this highly concentrated hydrogen peroxide in space vehicles, The R.R.S. believes that th report will be of exceptional interest to rocket researchers.

The price is $1.50 post paid, ordered from the Reaction Research Society, P.O. Box 1101, Glendale, California 91209.

Planned April Rocket Launching at the M.T.A.

There are tenative plans formed to have a Society Rocket Launching on the week-end of April 24 and 25th. Those members desiring to fire rockets must have their Project Report in befor hand. This is to allow time in which to make an inspection and to permit modifications if necessary.

For those non-members who would like to come to the launching. send a postcard or notify a member friend so we can list the expected number to be present in filing for our Rocket Firing Permit to the California State Fire Marshal.

As this will be the first launching of the season, lets pitch in and make it one of the best ever. Some problems that were experienced with the recovery of the Mail Rockets can be solved through continued experimentation. Success at this task will probably make it possible to have a special and most unusual type of Rocket Mail Flight sometime next year.

98

Reaction Research Society Inc.
Box 1101
Glendale, California. 91209