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An Active Rocket Society



Photo by Richard Schenz

Rocket takeoff at second Rocket Mail Flight of the Reaction Research Society, held at Trona, California, March 27, 1948.

ROCKET MAIL ISSUE

THE HISTORY, PRESENT, AND FUTURE
OF SENDING MAIL BY ROCKET

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REACTION RESEARCH SOCIETY ROCKET MAIL FLIGHT
OF MARCH 27, 1948

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Edited by Arthur Louis Joquel II

THIS MONTH'S COVER PICTURE

The cover picture this month, taken by Dick Schenz, shows the takeoff of one of the Society's Mail Rockets, fired at Searles Lake on March 27, 1948. Eight rockets were fired, carrying a total of 4200 specially stamped and cacheted covers from Inyo County across the lake to Trona, San Bernardino County. This photograph, which is one of the most spectacular pictures ever made of a Society rocket, was taken from a photographer's pit less than one hundred feet from the launching rack.

HISTORY, PRESENT AND FUTURE

OF SENDING MAIL BY ROCKET

Mail by rocket may be considered as the next logical development in faster postal service, which has advanced from the carriage and pony carrier, through the train to the airplane.

Rocket mail is still in the beginnings of its development, and since its inception a little more than seventeen years ago seems to have made little progress. However, with the technological advances made in recent years now available to assist its growth, sending mail by rocket no longer seems a remote and fantastic idea, but has moved into the realm of the near future.

The first rocket mail flights were the work of an Austrian named Friedrich Schmeidl. On March 2, 1921, after a period of experimentation Schmeidl fired a rocket between the towns of Schockel and Radegund, near Graz, Austria. The first flight carried 102 letters a distance of about two miles.

As the distance by ordinary routes was several times as far, the service had a highly practical aspect. Schmeidl succeeded in having rockets recognized by the Austrian government as a legitimate means of mail transportation, and on September 9, 1921, fired a rocket carrying 333 letters between Hochirotch and Semriach, Austria. Letters flown on this occasion used the first postage stamp prepared especially for rocket mail.

Schmeidl's rockets were approximately five feet long and nine inches in diameter, and

weighed about 65 pounds when loaded with fuel and payload. The fuel was a powder prepared by Schmeidl according to a secret formula.

A German, Gerhard Zucker, was encouraged by Schmeidl's success to open a rocket mail line in Germany. In August, 1933, he made a flight between Hassfelde and Stiege, located in the Harz Mountains of Germany. He made other successful flights in Germany, but when he visited England to demonstrate his rockets, Zucker had a distressing run of bad luck. His rockets, which were powdered fueled and of simple construction, blew up consistently, and Zucker finally abandoned his project and returned to Germany.

In America, W. W. Kessler, a Brooklyn, New York, stamp dealer, became interested in rocket mail, and in 1933 published a catalogue of rocket mail stamps. This included, besides Austrian and German stamps, a number from Britain and six from India, one of which was a ship-to-shore stamp dated September 30, 1934. It may be noted that large signal rockets have been used at various times by ships to fire mail to shore when heavy seas have prevented them from approaching close enough to dock and unload.

Kessler had become interested in rocket mail before this time, and was the sponsor of a mail rocket flight from New York to New Jersey, across Greenwood Lake. Rather than the conventional rockets, two aluminum gliders, using liquid-fuel rocket engines, were constructed. So many problems were encountered that when the flight was finally held, on February 2, 1936 the gliders rose sreeply off the launching rack, and then plunged down to skid over the frozen surface of the lake for about 1000 feet.

On July 2, 1936, the first international rocket mail flight was held, between McAllen, Texas and Reynosa, Mexico, across the Rio Grande. Three rockets were fired from McAllen

to Reynosa, one of which exploded in midair, and only a few covers were salvaged.

After the rockets were fired into Mexico, the official party, which included representatives of the American Legion and the Mexican government, and city officials of McAllen, crossed the international bridge and erected the launching rack in Reynosa. Three rockets were then fired to McAllen, achieving distances of from 1000 to 3000 feet. The rockets carried about 300 letters each.

Various other flights have been held in several countries. A government-sponsored flight was held in Cuba in 1939, but the results were never revealed in detail. Holland, which has been the scene of a number of rocket mail experiments--one successful one was held on January 24, 1935--is now the scene of rocket mail experiments by Prof. Dr. A. J. de Bruin, which began in 1945.

The Reaction Research Society planned a rocket mail flight as one of its earliest projects, in May, 1943. However, due to other research commitments, and the lack of a satisfactory solid-propellant rocket engine, no work was done until three years later, in May, 1946, when research on micrograin rockets showed that this type of rocket would fulfill the requirements.

Early in 1947, the first experimental mail rocket, the "Submiler," was designed and built. Seven feet long, two inches in diameter, and weighing 16 pounds loaded, the "Submiler" was fired at the Society's testing area at Palmdale on February 23, 1947, and traveled a distance of 2100 feet. From information gained at this firing it was possible to construct the "Miler I" and "Miler II," which were fifteen feet long, two and one-half inches in diameter and weighed over 50 pounds. These rockets, fired on March 23, and June 1, 1947, traveled 3500 and 4000 feet.

and showed that the mail compartment would withstand the shock of landing.

The Reaction Research Society's first rocket mail flight was held on June 28, 1947, from Winterhaven, California, across the Colorado River to Yuma, Arizona. Two rockets, each similar to the "Miler" prototypes, were fired, each one carrying 350 letters.

The covers carried by the rockets consisted of United States Centenary Air Mail envelopes, with a special rocket mail stamp printed in red, prepared and cancelled by the Society, which showed a picture of the takeoff of the "Submiler" rocket, with the imprint "R.R.S. Rocket Mail--50¢." A cachet showing a picture of the "Miler" rocket on its launching rack, with the point of origin, point of arrival, date of the flight, and the imprint "In commemoration of the Centenary of the United States Postage Stamp, 1847-1947" was applied to the envelopes.

The first rocket was unavoidably exposed to the desert sun, in a temperature of 120 degrees for almost an hour and a half. This caused the micrograin propellant to produce a far greater internal pressure than the stainless steel chamber could withstand. The rocket exploded about a quarter of a second after ignition, plunging the mail compartment into the river, where it was lost.

The second rocket, which had been stored in a shady spot, was successfully fired, and traveled a distance of a mile across the Colorado River, landing within a hundred feet of its target. Refunds were made to all collectors whose covers were lost, or who were not able to be supplied from a small stock of special covers carried in the second rocket.

Public interest in sending mail by rockets can be aroused by these short-range flights,

which may also be useful for certain special purposed. But the main future use of mail-carrying rockets will be for flights over longer distances.

With the present knowledge, it would be possible to design and build a mail rocket with a range of 500 miles. This rocket would be slightly larger than present-day V-2 rockets (45 feet long), would have stubby, swept-back wings, and would be guided electronically from the ground during the entire takeoff, flight, and landing.

German scientists, experimenting with the V-2 (or A-4) rocket, developed a winged model called the A-4b, which had a range of 350 miles. A modification on the drawing board at the end of the war had a range of 450 miles; This would be sufficient to carry a ton of mail from Los Angeles to San Francisco, and such a flight would take approximately ten minutes.

Since the rocket, like an airplane, would be usable many times, the main cost of such a trip would be the propellant used. In a improved type rocket resembling the V-2, this would probably weigh about fifteen tons. At the present cost of oxygen and alcohol, the propellant cost would be around \$15,000.

Including propellant costs, rocket maintenance, and special delivery service at the point of arrival, the one-ton payload could be flown at a charge of about \$1.00 per ounce. Delivery would probably take under one hour from mail slot to address.

Longer-range mail service, such as trans-Atlantic flights, would require a two-step rocket, approximately 100 feet long, which would be guided by a human pilot. While German designers had such a rocket planned, it may be considered as a project for some future date, while the 500 mile range rocket is well within the possibility of achievement at the present time.

R.R.S. ROCKET MAIL FLIGHT, MARCH 27, 1948

About the latter part of December, 1947, the Executive Council of the Reaction Research Society took under consideration the possibility of holding another rocket mail flight. Two considerations were paramount--first, that the flight be held over land, so as to prevent an accident similar to that which occurred in the Society's first mail flight, and second, that the site should not be too far from Society headquarters.

After considerable checking of California maps, both road and air, the choice was narrowed to a promising-looking dry lake, named after a California pioneer named Searles, near the town of Trona, and not very far from both the Inyokern and Death Valley. The story of the expedition sent out to explore this site is best narrated by David Elliott, one of the adventurers:

After struggling against delay, mechanical failure, and starvation, the president and members of the R.R.S. have succeeded in making final arrangements at Trona, California, for the March 27th rocket mail flights.

George James originally made an appointment with Mr. A. J. Anderson, manager of the American Potash and Chemical Co., for 3:30 pm. Friday, January 30, to obtain permission to make the flights. We were scheduled to leave for Trona on Friday morning at 11:00 after picking up Glens Maxson at U.S.H.A. Instead, the trip, made in Doug Penrod's Model A. Ford, commenced with an extended tour of Pasadena and far flung sections of Los Angeles in order to perform sev-

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eral errands including returning a rented tuxedo. When we reached U.C.T.A. at 1:00 o'clock Maxson was gone, so shortly thereafter the Model A started for Trona loaded with five passengers, a sighting device, three movie cameras, a projector and a group of Society films, a tripod, a portable radio and two shovels.

The Model A. kept up a satisfactory pace for the first hundred miles. But 30 miles from Inyokern, the motor, which until then had been running badly on four cylinders, began running badly on three. Finally as dusk was settling over the desert we pulled off the road. Now Venus is a very beautiful planet, and it is of particular interest from the standpoint of rocketry. But it is a dismal failure as a source of illumination for examining the interior of a distributor. Penrod tried various positions of the cam 2 degrees at a time through 90 degrees, cranking the motor each time (the car has no starter). This failed to improve the motor so we got back in the car and roared off down the highway again at a good 10^{-5} feet per second per second acceleration. At 7 o'clock we sputtered off the main highway and headed for Trona. At 8 o'clock we sighted the lights of Trona as simultaneously the model A cut back to two cylinders—and at 9 o'clock we coughed into town.

Penrod was instantly back under the hood because he had to be back for work Saturday morning. So, after eating what turned out to be our last meal for 24 hours, George and I moved into a room costing \$4.00 for the night and then found that the bus fare back from Trona would be \$6.00 each. By borrowing every cent that Penrod didn't need to get back we amassed \$16.00. This left us \$0.00 to eat on.

On Saturday morning, after not having breakfast, we saw Mr. Anderson, showed him the films, and received his permission for the flights. He

then had us driven out to the dry lake where we found a bench mark conveniently located on the county line in a good place for the flight.

We returned to Trona in time to not have lunch, bought bus tickets and spent the early afternoon taking some preliminary 16mm movies at a film cost of twelve hamburgers per minute. At 3 o'clock we left for home on the bus, via every small town in southwest California, and at 8:30 we got off at Burbank. We then spent our last dime to phone Bob Crichton at Cal-Tech, to whom we worded a plea that no Christian could refuse, and at 11 o'clock he rescued us from the street corner on which we were consuming our last calories to keep from freezing.

Late in February and early in March, 1948, the Society began to send information to the press. A preflight showing of one of the mail rockets was held, and details about the forthcoming flight were featured at all Society meetings. The stories read about like this:

GLENDALE, California, February 23:

Mail by rocket will flash through the desert sky at speeds of 400 miles per hour at Trona, California, on Saturday, March 27, 1948, when Reaction Research Society technicians carry out their second mail rocket flight program.

The needle-slim projectiles, most modern means of mail transportation, will roar over the same ground which stage coaches and pony express riders crossed as the fastest mail service of their day.

Early in the morning, the Society test crew will erect their launching tower in Inyo County, pointing across Searles Dry Lake. When everything has been thoroughly checked, the warning signals will be given the ignition switch will be thrown, and the first rockets will hurtle sky-

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ward, finally coming to rest in San Bernardino County, within the postal jurisdiction of Trona.

The letters which will be carried in the first rocket, and in the four others which the Society is prepared to fire if sufficient orders are received, will carry a United States 3¢ California Gold Centennial Stamp, plus a special rocket mail stamp and cachet. The rocket mail stamps will be cancelled by the Society before the flight, and the regular postage stamps will be cancelled at the Trona post office, where they will be delivered after the rocket has been retrieved.

The rocket mail stamps are printed in blue, and show the takeoff of a Reaction Research Society Rocket, with the imprint "R.R.S. Rocket Mail--50¢." They are the first rocket mail stamps ever printed to show the actual takeoff of a rocket. All previous stamps have shown drawings or designs of speculative or abstract rockets.

The cachet will show a photograph of a Reaction Research Society Rocket on its launching rack. The point of origin, point of arrival, and date of the flight are given, as well as the imprint "In commemoration of the Fifth Anniversary of the Reaction Research Society, 1943-1948."

On the back of the envelopes will be the name and address of the Society, with the information "This flight authorized by the Executive Council of the Reaction Research Society. This cover Flown in Rocket (number of the rocket)." All covers will be signed by George James, president of the Society.

The cost of sending a cover will be 50 cents. The rocket mail stamps will be both imperforated and perforated, and will be sold separately in sheets of four for \$2.00. The stamps will be bordered with a designation of their origin, date, and use.

The deadline for orders of flown covers is March 13, 1948. Money will be promptly refunded if any orders cannot be fulfilled.

The rockets to be used in this mail flight are eleven feet long and three inches in diameter. They will be loaded with micrograin powder, a low cost, high power solid fuel developed by the Society. The mail will be carried in special compartments built into the rocket's fins, which are made of plywood, covered with sheet aluminum. Each rocket will carry 300 covers, distributed in foil wrapped packets of 25 covers, three packets to a fin.

All possible safety precautions will be taken during the firing. No one except authorized personnel will be allowed within specified distance of the loading and launching area, and the crew and photographers will be located in pits at a safe distance.

Suddenly, orders began to pour in from the eastern states. A little checking revealed that a concise, accurate article on the proposed flight has been carried in Kent B. Stiles' stamp column in the New York Times. Other articles appeared in the Christian Science Monitor, McKeels' Stamp Magazine, Linn's Stamp Magazine, the Los Angeles Daily News, and various other publications as far away as Scandinavia, being carried by the Associated Press.

Poor weary mailmen lugged baskets of letters to headquarters. All of the available Society members, their families, and friends were pressed into service, addressing, stamping, checking, counting, and sorting. Instead of the expected two rockets, or even the five which the society had been prepared to fire, it was necessary to machine nozzles, make fins, capsules, smoke flares, and otherwise prepare eight of the gleaming missiles.

Then, just a few days before the event, the Government appeared on the scene to check on whether the Society-printed stamps violated any postal laws. The entire lot of stamps and covers, plus the plates from which the stamps were printed, were impounded and taken to the Federal Building in Los Angeles. George James spent hours in conference with United States Attorney General James Carter and other officials, explaining to them that rocket mail was nothing new, that almost every county had seen the use of rocket semi-postals, and that there had been no intent to resemble a U.S. stamp.

Finally the stamps and covers were released on the condition that each one be stamped "Not U. S. Postage." This was done at the same time the rocket stamps were cancelled by the Society.

The launching crew left headquarters early on the 26th, with the eight rockets in a rack on top of one car, and the powder and fins in the back of another. Arriving at Trona with out incident, part of the crew began to erect the launching rack out on the dry lake, another group loaded and assembled the rockets, while the others made arrangements for lodging and other matters in Trona. The rocketeers who were in the town were constantly being stopped by the local inhabitants, who wanted details on the flight-- when, where, and a hundred others.

All night, various cars full of people were arriving, with reporteres, newspaper and newsreel photographers, rocket experts, and relatives, friends, and acquaintances of the RRS members. By shortly after dawn, when the first rocket was ready to be fired, there were several hundred orderly spectators on the lake and the road which ran past it.

After the area had been cleared and a final check made of the rocket, a one-minute horn warning was sounded. Ten seconds before firing,

a white smoke flare was set off. Then, at the nose of the rocket, a puff of smoke showed that the tracking flare had been ignited.

There was a second's hesitation, then with a rush of orange-red flame and smoke and a rumble like thunder, the slender cylinder leaped skyward. Up and out it went, high into the almost cloudless sky, easily followed in its path by the arcing smoke trail. Finally it came to earth, almost directly between the spectators and the sun, nearly a mile away from the launching rack.

The retrieving crews could be seen driving across the lake, kicking up clouds of dust. The fins, slightly crumpled and bent but with the mail inside in perfect condition, were brought back to the launching site before the second rocket was ready to be fired.

After the second rocket, which performed as perfectly as the first, the launching rack was lowered and its direction changed slightly, as the angle of the flight made it difficult for the motion picture photographers, who included crews from News of the World and Pathe News, to follow the rockets without glare from the sun.

Between rockets the visitors and crew discussed the success of the flights, took hundreds of pictures, and snacked from food generously contributed by Cal-Aero Technical Institute and other friends.

The fourth rocket did not ignite, and was removed from the rack, re-armed and fired last. Between the sixth and seventh rockets, three of the Society photographers dug a fox-hole about 75 feet from the rack. When the seventh rocket was fired, it exploded about a hundred feet off of the rack, blowing up with a huge cloud of flame, and splitting the tube into four pieces. The photographers received a scard, but also got wonderful pictures of the blast.

When the mail was delivered to the Trona post-office, the postmaster refused to receive it, stating that he had not been notified of the OK given it by the government officials. So the boxes of letters were left with some of the Society's friends in Trona, pending clarification of the matter. After two frenzied weeks of correspondence and talks with various officials, clearance for the mail was obtained. Meanwhile newspapers all over the world had carried the story and pictures, and movies of the flights were shown at the Society's fifth anniversary meeting. The Society's final news story read:

GLENDALE, California, April 27, 1948:

Rocket mail, the fast communication system of the future, attained a complete success in its most recent small-scale preview, it was revealed today by officers of the Reaction Research Society of Glendale, California, which sponsored the project, held on March 27, 1948.

With the official lifting of a Post Office Directive which had delayed posting of the letters through regular channels for more than two weeks, the 4200 rocket covers were en route to their destination all over the globe from Trona, California, where the flight was held.

Because of an alleged similarity between the Society-designed stamps and the United States Government postage stamps, the rocket mail project was investigated by the United States Attorney's office, and Society officials agreed to overprint each rocket stamp with the words "Not U. S. Postage" in black.

Because of a completely unexpected amount of public interest in the flight, the number of orders far exceeded expectations. In order to fill all of the requests which arrived by the deadline of March 13, it was necessary to use light weight envelopes for most of the covers.

Part of these are regular envelopes, and the remainder are air-mail envelopes, with a 2¢ stamp in addition to the Centennial.

Between dawn and noon on March 27, 1948, eight rockets, each eleven feet long, three inches in diameter, with mail compartment built into their plywood guiding fins, roared over the glistening expanse of Searles Dry Lake in the Mojave Desert, use of which had been granted by the American Potash and Chemical Corporation. The launching rack was erected in Inyo County, and the rockets were fired into San Bernardino County, in the Postal jurisdiction of Trona.

Of the eight rockets launched, seven made perfect flights, attaining speeds of 400 miles per hour, altitudes of about half a mile, and an average distance of almost a mile. One rocket exploded from a faulty tube a second after leaving the launching rack, but its cargo of 600 letters was undamaged. The flights were photographed by both newspaper and newsreel cameramen from most national agencies.

When the mail was retrieved and delivered to Trona Postmaster John B. MacPherson, it was found that he had not been informed of the clearance of the special stamps by United States Attorney James M. Garner, but was still working under a directive forbidding his acceptance of the letters stamped in this way.

Society officials promptly began to contact government agencies and individuals, including Senator Sheridan Downey of California. After more than two weeks, the Post Office Department lifted the ban which had barred the letters from regular postal channels, and the 4200 covers were postmarked at Trona, California, on April 17, 1948. The Society had previously cancelled the rocket stamp.

It is believed that the eight rockets, carrying 4200 covers, constitute the largest rocket

mail flight ever held. Of the many rocket mail flights held both in the United States and Europe since 1931, the largest previous flight was held from McAllen Texas, to Reynosa, Mexico, on July 2, 1936. Six rockets were fired, carrying a total of nearly 2000 covers.

The rocket mail stamps prepared by the Society were printed in blue, and were both perforated and imperforated. They were made up in blocks of four, bordered with a designation of their origin, use, and date of the flight.

The Society held this flight to stimulate interest in the possibility of using rockets as long range mail carriers. Society technicians declared that this flight, and the others which have been made in the past, are forerunners of future rocket mail between cities as far apart as Los Angeles and San Francisco.

The rocket mail flight was held at the fifth anniversary of the Society's founding, and proceeds realized from the flight will be used to further Society research.

In addition to many newspaper stories about the flight, Popular Science and Parade carried two-page picture spreads on the event, and Linn's Stamp Weekly had a full-length article and a photograph of one of the flown covers.

From the proceeds of the flight, the Society purchased a new mimeograph, a new South Bend lathe, a drill press, and other equipment, in addition to many chemical and other supplies.

And, with the conclusion of the largest, the most publicised and certainly the most spectacular rocket mail flight ever held, the Reaction Research Society is now proceeding to other projects, such as "Project Goddard," the high-altitude meteorological rocket project, and other lines of research which may have much influence on the world of tomorrow.

REACTION RESEARCH SOCIETY

PURPOSE

The REACTION RESEARCH SOCIETY, founded in 1943, is a non-profit organization whose purpose is the development of reaction propulsion and its applications, the promotion of interest in this science, and its allied educational and technical activities.

MEMBERSHIP

At the present time there are two main classes of membership in the Reaction Research Society, Active and Associate. Active membership is for the interested and qualified persons who by their membership indicate their willingness to engage in the activities of the society. Active members hold full scientific or research membership in the society and have the privilege of attending meetings and testings of the society. Active members receive all society publications published during their membership and are eligible to conduct society sponsored research and to hold office in local society groups. This class of membership is \$5.00 per year. Associate membership is for those interested and qualified persons who find it inconvenient to devote sufficient time on work of the society to warrant an active membership. They have all the privileges of active members except holding office in local society groups, serving as a project or testing chief or in any other manner being in charge of a society technical or scientific research activity. This class of membership is \$3.00 per year. If you are interested in joining the society, please write to:

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