



RMI Volume Up 33% in 1951, Report Shows

Announce Rules for RMI Photo Contest

Now that spring is here, many people dust off their cameras and start taking pictures. Here is your chance to show the rest of us what you can do, and perhaps win the First Prize — a bottle of Scotch.

All employees of Reaction Motors, except members of the Photographic Dept., are eligible to enter the contest. Naturally the pictures must be taken by the person entering. There are three classifications in which the pictures may be entered: human interest, landscape, and still life. Photographs may be submitted in one or all of these groupings. The pictures may not be taken on RMI property (security reasons).

There are no specific size requirements, but a negative of the picture should be available, as we plan to have an exhibit of the pictures.

Entries should be sent to the Editor by May 15, 1952. They will be judged by Tom Dalman, head of RMI's photo lab, Hamilton Winslow of the Contracts Dept. who has been a professional photographer, and Helen Loughlin, Editor of The Rocket.

Start planning now so you will have plenty of time to enter several pictures and win that prize!

Layout of RMI Impresses Visiting Rocket Committee

On Tuesday, February 26th, several members of the Rocket Technical Committee of the Aircraft Industries Association visited Reaction Motors for a technical meeting and general tour of the plant. Five companies were represented: North American, Bell Aircraft, General Electric, M. W. Kellogg, and Bendix.

The men were very impressed with the RMI plant, particularly with the layout and neatness of the shop.

American Rocket Society

The next gathering of the American Rocket Society promises to be very interesting. It will be a dinner meeting and will take place on Friday, April 18th. The program for the evening will include a movie called "Screaming Jets" by AVRO Canada, which will concern British and Canadian jet aircraft as well as The American "Sabre" and Russian MIG-15. The speaker will be announced at a later date.

Makes Annual Report



RMI President Ray Young

RMI Budget System Published by NACA

An article written by Bill O'Brien entitled "Budgetary Control in a Research & Development Company" was recently published in the March 1952 issue of the N. A. C. A. Bulletin.

The topic is timely because of the large degree of interest demonstrated in the control of research and development operations through budgeting. Until recently it was not thought possible or practical to apply the principles of budgetary control to this type of work. The question is still one of warm debate.

Bill describes the development of the system presently used at RMI in a comprehensive, narrative fashion. He emphasizes the importance of understanding the nature of the operations of the enterprise in order to adequately evaluate a budgetary control system. This is especially true in a specialized type of company such as Reaction Motors.

After describing the method of formulating a working budget, he concludes by stating that the three years of budgeting at RMI has proved that it is practical for an operation which is primarily research and development in nature. The importance of keeping the program flexible to allow for expansion, contraction, and other changes in conditions are emphasized.

If you are interested in reading the complete article, copies may be obtained from Mr. Venghaus's office.

President Young Reviews Progress, Calls for Cooperation, Efficiency in '52

by R. W. Young

On Tuesday, April 1st, at the Annual Stockholders' Meeting, RMI's Annual Report for the year ending December 31, 1951, was released, and it was most gratifying to review the results of last year's operations. I wish to express to each employee my appreciation for making 1951 the most productive year in the Company's history.

Our sales for the year amounted to over \$4,600,000, or approximately 33% greater than the previous year. In order to better illustrate how our Sales Dollar was expended the following analysis was drawn up.

| | Amount | Percentage |
|--|-------------|------------|
| Realized from Sales | \$4,630,000 | 100% |
| Paid in Salaries and Wages | 2,900,000 | 63% |
| Paid Vendors, Suppliers and Services | 1,147,000 | 25% |
| Depreciation and Reserves | 176,000 | 4% |
| Paid the Government in Taxes | 231,000 | 5% |
| Net Profit Available for Purchase of Capital Equipment and Reduction of Bank Loans, etc. | 146,000 | 3% |

So much for 1951! Now let's take a look at what is happening in 1952.

Despite the recent reduction of one of our programs, and a change in the future plans of one other program, our Net Sales for the first two months exceeded last year's by \$150,000 and our Backlog of Orders on the books as of the end of February was substantially greater than as of February 28th, 1951.

As you know, Reaction Motors' primary activity for the Armed Services is Research and Development Work, however, we are constantly striving for work which will result in quantity orders. Research and Development Work is subject to constant changes as the Military evaluates this country's scientific progress and tactical requirements.

Let's take an objective look into our present and future picture. A number of our important activities are behind schedule. Each of you can play an important part in our program by striving towards greater cooperation and efficiency. Improving our performance on current work is one of the best sales tools for new business.

The Company is presently engaged in a very active campaign for new business and is expending considerable effort in the preparation of proposals for many diversified programs.

Management has already started to gather the necessary statistics to proceed with the May 1st semi-annual reviews. In addition, the Company has been studying a number of types of retirement programs with several insurance companies. Although it may be quite some time before we can afford such a program, and obtain the approval of the Services, we are anxious to work toward long range security for our employees.

Rocket, Astronautical Groups Forming Throughout World

Since the war, rocket and astronautical societies have been springing up all over the world. In this country there are at least five such groups, American Rocket Society, Chicago Rocket Society, Detroit Rocket Society, Reaction Research Society and Pacific Rocket Society.

In Europe and South America there are also numerous societies including: Argentina — Sociedad Argentina Interplanetaria;

Austria — Oesterreichische Gesellschaft fur Weltraumforschung; France — Groupement Astronautique Francais; Germany — Gessellschaft fur Weltraumforschung (Stuttgart), Gessellschaft fur Weltraumforschung (Hamburg); Italy — Associazioni Italiana Razzi; Spain — Asociacion Espanola de Astronautica; Sweden — Svenska Interplanetarisk Selskap; Switzerland — Schweizerische Astronautische Arbeitsgemeinschaft; United Kingdom — British Interplanetary Society.

Not a TV viewer in the crowd!

The Life and Mates of a Hydrogen Peroxide Molecule

by Dr. Paul Blatz

My name is -O-O-. To chemists I am known as a peroxide radical. I came into existence as the result of a rude collision when two radicals designated by the formula HO-SO₂-O chanced to collide near an anode in a BECCO electrolytic cell, and there I was.

There I was, I say, holding on to two hydroxysulfone groups. All together we looked like this: HO-SO₂-O-O-30₂-OH. Gradually I became aware of the increasing presence of other clusters just like the one of which I was a number. A neighboring molecule diffused my way and informed me that we belonged to the elite class of molecules known as persulfuric acid.

For a while I did nothing but obey Boltzmann statistics wandering about bumping into the increasing horde of persulfuric acid molecules. Finally things began to happen. My neighbors were being replaced by smaller molecules. My amazement was brought to a climax when a small molecule with an apparently powerful affinity for my right hand sulfuryl group snatched it away leaving a tiny gleaming proton in its place. A few mill-seconds later the same fate overtook my left hand partner. My two new playmates informed me that we were now a hydrogen peroxide molecule, and that they were glad they had joined me rather than remaining behind in the sulfuric acid, only to lead a life of buffer solutions, indicators and titrations. Yes sir, this would be a new experience.

And indeed it was. A few minutes later we, that is I, bounded into a region of space and sailed along for an astonishingly long while before we bounced into another molecule just like ourselves. As I changed my perspective, I noticed that I was now a member of a swarm of H₂O₂ and smaller H₂O molecules, all travelling in the same general direction.

Pretty soon we were crowded together again. Wending my way through the dense environment of liquid 30% H₂O₂, I diffused into a relatively inactive region where I found myself a member of a vast lamina of immobile, gently vibrating H₂O₂ and H₂O molecules. Occasionally one of the immobile molecules would hop out of the layer and another one would presently take his place.

Ahead of me was another layer of vibrating, well oriented members. The individual bodies resembled my own except that they appeared to be hooked to something farther ahead. Somebody informed me that we were in the grip of the electric double layer. Although I vibrated with all the kinetic energy at my disposal, I could not approach any closer to the layer of oxygen atoms ahead. Finally I shook

loose and wandered out into the solution again. Someone presently told me that the restraining layer was a passivated aluminum surface, and that the exterior layer of oxygen atoms acted as guardians against any frivolous encounters between aluminum atoms and H₂O₂ molecules.

Sometime later I noticed that our neighbors, the H₂O molecules, were disappearing. During the period of their disappearance, we were all bounced around strenuously. Upon inquiry, I learned that the H₂O lads had gone the "way of vacuum distillation."

After what seemed an interminable period of wandering around in the now 90% liquid H₂O₂, we were poured into a 500 gallon passivated aluminum container which, I learned, had been shipped empty from RMI to Becco. We were soon returned by truck to a storage yard at RMI where I was poured into a 30 gallon tank in which I remained for several weeks. It was so cold during this period that on several occasions I lost all my translations and rotational degrees of freedom. I was informed that this Test Area becomes quite cold at times!

One day I was poured into a 20-gallon tank. A few minutes later I joined a swarm of neighbors all travelling in the same direction in a narrow pipe. We presently emerged into a chamber full of hot, screaming peroxide molecules, some of which had been cut in half.

My fate was not kept long in the making. I shot against a wire screen which was covered with a vast reddish brown lattice of oxygen atoms. In many places the lattice surface was pocked with holes from which oxygen atoms had disappeared. At the bottom of these holes were the executioners, manganese atoms whose ability to change valence state enabled them to wreak havoc with oxygen atoms.

After a short while on the surface, I fell into one of these holes. Immediately my spinal cord, the peroxide link, was severed, and I was now a humble water molecule, rapidly being ejected into the atmosphere.

As for my other half, I did not ascertain his fate until a long time later when we met on the same molecule of chlorophyll. He was now a member of a carbon dioxide molecule. He had picked the carbon up, he explained, after someone had inspired him in the form of an oxygen molecule.

This ROCKET is a 6 page combination of the March and April issues. We expect to return to the regular monthly issue in May.

Asst. Research Head



R. W. Wehrli

Bob Wehrli made RMI headlines recently by becoming the Assistant Director of Research. His success story is an interesting one. Bob came to Reaction Motors from Linde Air Products in June 1949 as a Research Physicist. In November 1950 he was made Chief Physicist, and in February of 1952 Assistant Director of Research. He is 30 years old and a graduate of R. P. I. He and his wife, Marge, have two children and live in Sparta, N. J.

Star-Guided Missile on Research Agenda

by Fred Ordway

Most people, when they think of guided missiles, imagine curious arrays of radios and radars sending out mysterious beams, along which the speeding projectiles might fly. This is quite correct, but when it comes to war it appears that enemy apparatus could interfere with the beams and cause the missile either to explode prematurely or hurdle to earth. Consequently, research is being done on star-tracking devices that would be immune to any electro-magnetic waves that might be thrown against the approaching projectiles. It is apparent that the range of such a star-guided missile would theoretically be enormous.

The tracking mechanism is discussed in a recent "Aero Digest." It appears that the star tracker would continually adjust the gyroscopic control, with the result that the missile would follow a curved rather than straight path. In the forward part of the missile would sit the tracking telescope, fixed relative to the fore-aft axis, and at the same time able to rotate freely in a vertical plane. Light from a particular star would shine down the telescope's barrel between two adjacent light-sensitive cells.

The star's relative position, of course, is constantly shifting. Sooner or later its image will cross the telescopic field and shine on one of these cells,

which causes an immediate change in current flow of a balanced bridge circuit, which in turn operates a solenoid controlling servo-mechanism, which moves a control surface that turns the missile back towards the star. The gyroscope "pulls" the missile around again until the starbeam once again centers-up between the light cells. This procedure sounds mighty confusing (and is), but it supposedly will keep the missile in a curved path, en route to its destination.

But that isn't all! Stars have the habit of rising and setting, so it is obvious that the elevation of the tracker must be repeatedly altered. A star-follower, or second telescope, trained on the same star, performs this function. It rotates with star tracker, but light shining down its aperture falls upon light cells horizontally spaced across missile's axis, and not influenced by sideways motion of the star's image. The follower "notes" the rise or fall of a star's position, and sees to it that the tracking telescope is kept "glued" on the proper star.

Sun, moon and planet trackers may follow. The sun could be used during the day, and with ultra-violet or infra-red filters might enable flights beneath cloud banks. Planets provide steady light, and would be utilized around dawn and dusk when the star light is too weak. Thus around-the-clock missile attacks could occur . . . quite a grim prospect for a fear-ridden world.

Now we have to get our missile down on the target. It has been suggested that a "dive signal" could be given by radio on four, five or more bands, each frequency being picked up on miniature receivers on missiles. Each receiver would act like a "tumbler" in a "radio lock" — only by opening all at once would the missile dive on the target. The chance that the enemy would guess all the precise radio-frequencies is negligible.

Maybe the "push-button" war isn't so far away after all.

Fictionary of RMI Terms

- 20,000 Pounder — Wealthy Britisher
- Rocket — Radio City Chorus Girl
- Supersonic Flow — Slick chick named Florence
- Transonic — Across the ocean
- Subsonic — Under the ocean
- Hypergolic — Pizza Pie
- C* — Naval Hero
- C.A. & S.D. — Chattanooga, Alabama & South Dakota R.R.
- Atom — The First Man
- Antonym — He's agin it
- Proton — He's for it
- Neutron — He's undecided
- Electron — One who is elected
- Fission — Attempting to catch fish
- Standing Wave — Woman sailor on crowded street car
- Moment of Inertia — One minute after 8 a.m.
- Polygon — Dead parrot
- Hypotenuse — Large ugly animal
- Axis — Large hatchets
- Hyperbolics — Everything is bollixed up, but good
- Catalyst — Passenger list on cattle boat

RMI and Metallurgy

In the last few weeks the girls and men who work in the departments near the heat treating section in Manufacturing have often previewed, sometimes crowding three deep, the dramatic rites involved in operating RMI's new gas gulping pit furnace.

To Joe Mollek's horror, this new furnace and the relatively new process involved keeps two huge meters spinning at a half-hour rate equal to that necessary to do all the cooking for an average family for one month. But its potential advantages in helping produce rocket engines make this newest addition to the shop well worth while. Soon the new process and the rites involved in this—the transfer of the fiery red bell from the furnace to the cooling chamber and the burn off of the hydrogen in this bell—will become a commonplace event watched only by visitors to the plant.

The new process is called "Microbrazing" and its successful operation marks the culmination of 15 months work here at RMI. Its guiding father throughout this year has been John Fisher, RMI's young and mustachioed senior metallurgist. Although John fathered this project at RMI, he is the first to tell you that the credit should go to the Robert L. Peaslee who developed the process in 1946 while working for the Wright Aeronautical Corporation and who further de-

veloped the process at the Wall-Colomony Corporation in Detroit, manufacturers of hard-facing alloys.

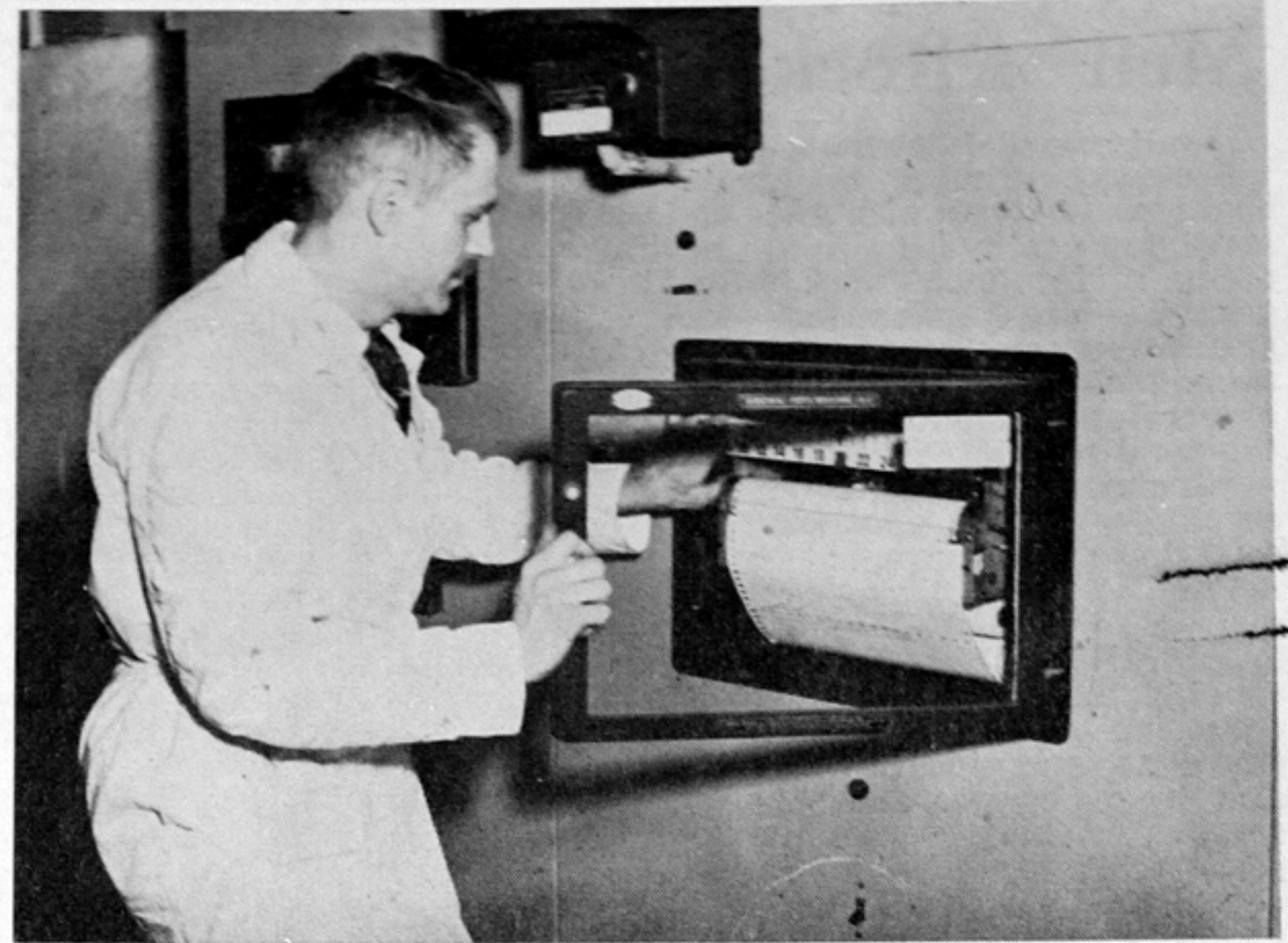
The "Microbrazing" process, John says, consists of applying a powder composed of chromium and boron in a nickel base to the joints to be made and fusing the alloy without flux in a dry hydrogen atmosphere at a temperature between 1,950 and 2,150° F.*

The process is not a cure-all, but it does have several advantages—the brazed joint is stainless, which is not true of silver solder and copper brazing; the strength of the joint is almost as good as the material itself as high up as the temperature goes; and many joints may be brazed at one time because the temperature of the entire piece is raised. This one-shot technique will result in considerable overall savings in some of RMI's complex rocket assemblies.

The "Microbrazing" process is also being used, John informs us, by Pratt and Whitney, Wright Aeronautical, and Wall-Colomony. John believes that RMI now has the largest bell doing this type of work. This new bell, which is 30 inches in diameter by four feet high is a big step up from RMI's previous 12 inch by six inch by five inch version.

Ray Kopituk, John Fisher's as-

* Those interested in the technical details of the process are referred to the materials group memorandum to project engineers of January 15, 1951: "Microbrazing" Process.



John Fisher

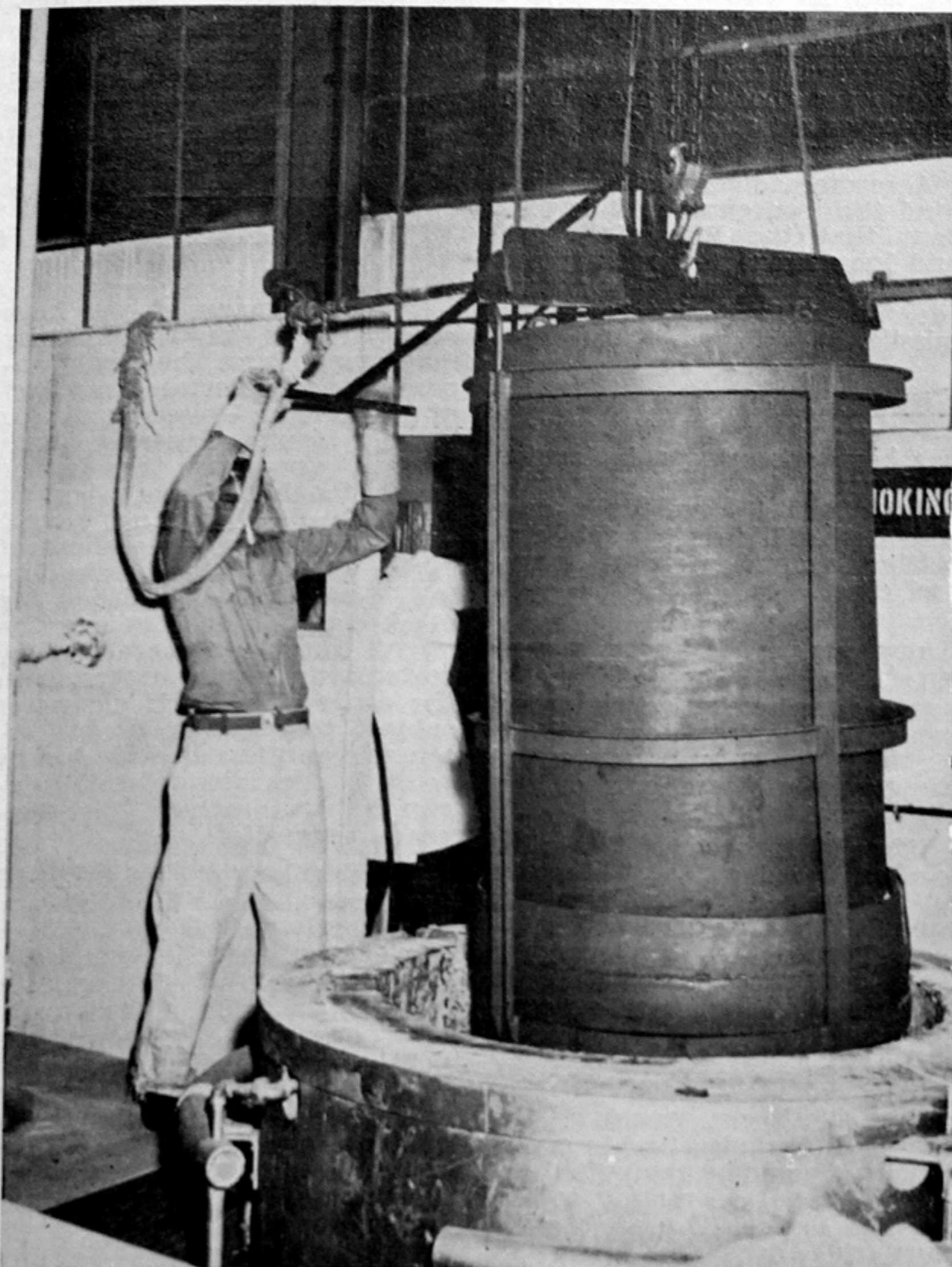
sistant metallurgist has helped set up the new process and equipment. Ray plays an integral part in the rites and, like John, steps fast when transferring the bell from the furnace to the forced-draft cooling chamber.

One of the most important parts in the "Microbrazing" process is played by Charlie Golightly who hides behind the anonymity of a "goon suit" and guides the removal of the furnace top and the transfer of the red hot bell. Charlie works in close to the

furnace and in his head-to-toe asbestos suit comes as close to looking like a space traveler as any man at RMI.

Emil Saloky, who directs the heat treating section, often plays a part in the process by drying the hydrogen drier and by firing up the furnace.

We hope that John Fisher and Ray Kopituk will soon have the process down to perfection and that they will quickly come up with other advances in the increasingly important metallurgical field.—H.W.



The pit furnace in operation

SKYWRITING

by Bill Wright

Gill Robb Wilson editor and publisher of Flying magazine has written an editorial in that magazine which should be of great interest to every thinking American. His article concerns itself with the apparent decrease in interest of American youth in aviation as evidenced by the startling decrease in student and pilot certificates issued, the number of flying schools which have closed their doors, and the general disappearance physically of the youth from the airport scene. That this is so must be admitted by everyone connected with aviation today. That this is a dangerous situation which threatens our very security as a nation is not so widely realized, however.

Mr. Wilson points out these facts and largely blames the high cost of "planes, fuel, hangarage and instruction." This is true, of course, but there are other factors which are equally important and perhaps are more underlying in nature. These, in my opinion, are the general lack of airmindedness of the American public largely engendered by a fear of flying instilled in it over the years by an unthinking press, and the lack of a better program for aeronautical education in our schools.

The first of these is the hardest to overcome since the fear has become so deep-rooted. You no doubt know many persons in the "you'll never get me off the ground" category. Most of these, however, become aviation

enthusiasts when they are finally "pried loose", from the ground and are shown that aircraft are used safely, comfortably and for practical purposes day in and day out. This is education in itself, and an airminded outlook can and eventually will grow out of it if we in aviation really try.

Education in the schools, on the other hand, must start with airmindedness in the home and a realization that children today are growing up in an air age. Should yours be denied knowledge of one of the greatest factors in our life today? If they are to understand tomorrow's problems they obviously must be equipped with the knowledge.

Mr. Wilson's purpose in writing his editorial in Flying was to awaken the American public from its lethargy toward aeronautics. Our youth must be interested in aviation if this country is to remain a power in the world; they will respond only if the rest of us examine our own outlook and revise our thinking.

Helped Get Licenses

Thanks go to the Traffic Department for helping us get our 1952 auto and drivers licenses. Over 100 persons took advantage of this service. Credit goes to Personnel who arranged it, the people in each Division who collected the money and cards, and the members of the Traffic Department who picked them up. Much nicer than standing in line on a Saturday morning!

WEAR Your Rocket Pin

Men of Rockets

by Heyward E. Canney Jr.

Browsing around in history books is a very pleasant and satisfying pastime if you are not doing it for "homework." Biographies are interesting, too, and if you combine the two you sometimes come up with very entertaining reading fare. In the field of rockets, this seems particularly true. It is full of surprises, humor, pathos, and sometimes adventure.

This column will attempt to give a series of largely biographical thumbnail sketches in roughly historical order, and to point up some of the human emotions and ideals, comedies and tragedies, which are often scarcely visible through the asphalt jungle of differential equations. We shall see that rockets in general and the proposition of space travel in particular have always been academic "hot potatoes" . . . extremely sensitive to public opinion, especially to possible ridicule.

In America, even today, rocket engineers tend to shield themselves with a high wall of calculus. They often talk in such cautious terms that one wonders whether or not they are apologizing for being interested in the implications of the device they seek to develop. Today, in an era of mass communication, there is little excuse for this. If the scientist would rid himself of ridicule he would do well to look into correcting the prodigious quantities of misinformation bombarding the public from irresponsible movies, books, articles, and radio and television shows. From a public relations standpoint, Captain Video is hot stuff, but educationally he has set rockets back fifty years.

Captain Video notwithstanding, rockets will continue to improve and to attract more and more competent men. They have been doing so for a long, long time.

The first of whom we have any record of being so attracted was ARCHYTAS, apparently a Greek, living about 360 B.C. He is reported to have built a sort of captive "rocket" propelled by a jet of steam. It was called the "Pigeon", and, maintained in a horizontal altitude by some system of counterweights,

No Frammis on the Bole?

Our foreign correspondent informs us that a Mr. Ignatz P. Gnugnu, (a distant relative of Mr. Ed Neu) has been given a special award for the design of a forced-draught flabbermeter to be used in regurgitating gribbets. Mounted on a rotary base, it employs a bevelled grock wheel driving a mandible blower through two diametrically-mounted bindles.

Evidently, it was not known that Mr. Mirabeau C. Towns (also a distant relative) has been running such a flabbermeter for some time. In this case, however, it employs a bevelled grock wheel driving a mandible blower through two diametrically-mounted bindles.

travelled in mad circles at the end of a string.

In 1232 A.D. we find references to the "fe-ee-ho-tsiang" (or "arrow of flying fire") being used at the battle of Peking. Although no range is given, men-



World's First War Rocket

tion is made of what sounds like a burst pattern of 20 to 30 feet, and there is no discussion of a bow or other shooting device. One is tempted to think they were true rockets.

ROGER BACON was busy in an English monastery about this time. In his "Epistola" of 1248 there is a good deal of information on the manufacture of gunpowder and rockets. He was a rather mysterious character, always turning up with jolting discoveries or performing apparently meaningless experiments. These discoveries, together with the fact that he used the more or less systematic experimental approach (one of the first men in history to do so) prompted his contemporaries to refer to him somewhat nervously as "Doctor Mirabilis", the miracle doctor. He had a good recipe for rocket propellants but added mystery to mystery by setting it down in a Latin cryptogram which defied solution for years.

At that time in German, ALBERTUS MAGNUS gave what later proved to be the same recipe in open test, copied from an earlier book by Marcus Graecus, which in turn was copied from a still older Arabic manuscript. The Arabs, it seems were largely responsible for the introduction of the rocket to the western world. One HASSAN er-RAMMAH wrote a book in 1280 on cavalry fighting and war engines. He, too, gives a recipe for gunpowder and instructions for making alsichem alkhatai (Arrows of Cathay). He spoke of a "self-moving and combusting egg" which could scarcely have been anything but a rocket-propelled land torpedo on wheels. The use of rockets for land and marine torpedos, we shall find, is a recurring theme.

LEHAN FROISSART, of France, suggested in 1400 that rockets be fired from tubes to give them direction. All the ingredients for a "bazooka" 100 years before Columbus!

A German military engineer, KONRAD KYESER VON EICH-

STADT, in 1405 described a broadening field of applications. In addition to the vertically rising rocket with which we are all familiar, he discussed a floating rocket, apparently designed to skim across the surface of the water and explode at the vulnerable waterline of an enemy vessel. He also mentioned a rocket which ran along a taut string, possibly intended for carrying messages over short distances.

The Italians also were no laggards at military engineering in those days. JOANES DE FONTANA wrote a book in 1420, full of potentially deadly rocket weapons disguised as rabbits and other creatures, which would scamper over rough ground on rollers, occasionally, we may imagine, with real rabbits in hot pursuit, and explode in the midst of enemy troops. Larger machines (probably disguised as elephants) were designed to crash through the heavy gates of fortified cities. War sure is hell when you can't even trust the bunnies.

Allegedly, the first man to actually fly under rocket power was an obscure Chinese public official named WAN-HOO. This imaginative gentleman tied two kites together and mounted a saddle between them, and attached 47 large powder rockets in strategic places. Climbing into the saddle, he gave an appropriate command, and 47 coolies with 47 torches ran in to light the rockets. Knowing the uncertainties of manufacturing quality control which probably prevailed in those days, we may well suspect that exploding rockets dispatched Wan-Hoo in 47 directions at once. In any event, there was a mighty flash and roar — and when the smoke cleared away, the coolies could find no trace of Wan-Hoo or his rocket ship. He was never seen again. Since it is most unlikely that his craft assumed a circum-terrestrial orbit, one may write off the event as a suicide—spectacular and unusually thorough. More on rocket men in the next issue.

News of the Industry

by Fred Ordway

PEENEMUNDE — It has been announced in Aviation Age that the Peenemunde site in North Germany, where the V-1 and V-2 were developed, is still being used as a rocket center . . . by the Russians. In addition to missile ramps and guided missile research and test facilities, it appears that the area is in service as an airfield for Soviet jet fighters.

According to reports from behind the iron curtain, it is evident that the Wasserfall, A-5 and long range A-9 rockets are under development. Being tested: The "Ubootrakete" guided missile.

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HELICOPTER MAIL SERVICE — Sabena, the Belgian Airline, has been operating a helicopter mail service for a year now, carrying about 400 pounds a day. Two Bell 4701's do the job, circuiting around Belgian towns and cities.

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JET PILOT CAPSULE EJECTION — The navy has reported a system whereby pilots flying modern 600 mph jets can bail out of their planes and not suffer the hammer-like effects of the slipstream.

Using this scheme the pilot can be tossed out of his jet in an egg-shaped, tough, Fiberglas capsule. BuAer's Airborne Equipment Division has developed the idea, designing the capsule so that the pilot may have an oxygen supply if he's ejected at 40,000 to 50,000 feet at -60 to -70° temperatures.

The pilot's sea would be the capsule in disguise, and in emergencies it could be catapulted out of the plane, converting to the egg-like device. The pilot could then ride down to warm air masses, hop out, and use his back chute, or he could utilize

the 38 foot parachute fitted to the capsule itself.

The capsule has other advantages. When it is in the form of the pilot's seat it would afford protection against flak, fire and crashing hazards. Then, if during a high-altitude flight, the airplane's pressurization system goes out of order the pilot could switch on his capsule's pressurizing unit, assuring himself of air and pressure.

Washington Story

No doubt many of you have read articles in the popular magazines about the newly appointed and colorful Vice Chief of Staff of the United States Air Force, Lieut. General Curtis LeMay, who was the former rough, tough and ready boss of the 20th Bomber Command which blasted the mainland of Japan with B-29 fire bombs during World War II. With a big black cigar clamped in one side of his mouth, General LeMay customarily issues orders from the other side which are never subject to question by his listeners regardless of rank. A story recently circulated in the Pentagon nicely illustrates the General's reputation.

In the pilot's seat of his B-29, the General, cigar in mouth and impatiently puffing out clouds of smoke, awaited the completion of the check-off list prior to starting the engines. Back in the crew quarters an excited corporal approached the crew chief and said, "Sergeant, there's an awful strong smell of gasoline fumes everywhere! Shall I run up to the cockpit and tell the General to throw away his cigar before the ship blows up?" Replied the sergeant quietly but with a knowing smile, "It wouldn't DARE!"



RMI BASKETBALL TEAM 1951-2. Standing: Layton Everitt, Jim Farrell, Bob Mulligan, John Mayenzet, Stan Ihde. Kneeling: Bob Jolly, Bob Frick, Art Koch, Bob Amses.

Sports

by Doug Mathews

This month's sports article was written by Doug Mathews of the Experimental Shop, in place of Tom Harry who has been out of town on business.

The trout fishermen will start to live again, with the opening day of the trout season falling on Saturday, April 12th. The prospects for a very productive season look good, with over 2,500,000 brook, brown, and rainbow trout of all sizes filling the ponds at the State Hatchery. As a result of a new type of feed, the trout are running from six to eight ounces heavier than those stocked in previous years.

This is a good time to get out your tackle and give it a good check, paying particular attention to the condition of the line guides and ferrules. Many good fly lines have been ruined by guides that have been used for too long a time, and have become grooved. A careful check of these guides now, may save you time and money later in the season. The reel, though not as important in trout fishing as in bait casting, should be cleaned and oiled. Have you ever had the unpleasant experience of a reel sticking when you were trying to pick-up line after a thirty or forty foot cast? If so, you know how nerve wracking it can be. A careful inspection of your line is also very important. If it shows signs of peeling or wear, you should reverse it on your reel, as this can double the life of a line. A careful check of last season's lures, hooks and leaders is also a very good idea. Last, but by no means least, is a careful check of your boots or waders. The water is pretty darned cold in April, and wet feet can spoil a good day's fishing. I know of two or three fellows who will verify this fact.

Bow and arrow enthusiasts will be interested to know that there is a new regulation which permits the taking of carp with the bow and arrow. This should provide great sport for the archer, and also greatly benefit game fish by ridding the waters of

these undesirable pests.

With the bowling season now drawing to a close, it looks as if the Production team is going to wind up in first place. But, as we all know, anything can happen before the final games are completed.

With spring just around the corner, the golf season is getting ready to make its entrance. How many tournaments are we going to have this season? I have heard it suggested that there be three tournaments, one in the early season, one mid-season, and one in the Fall. These tournaments would not only bring together a great bunch of fellows, but would also create a greater interest in a grand sport. If you have never played golf, don't let it keep you from entering these tournaments. In my opinion you can learn a great deal from the experienced golfers, who are quick to offer helpful suggestions to anyone who shows an interest in the game. Let's get the ball rolling, and keep it rolling until all of the plans and arrangements have been completed for these tournaments.



Spring Is Here Again!

Softball season is just around the corner. For all you enthusiasts who are interested in playing, practices will be held on April 14, 16, 21, and 23, on the field behind the Stapling Machine Co. immediately after work.

Anyone interested in playing must attend these practices. For more information contact George Haynes, Rock-away plant.

Upper Atmosphere Research Continues

by Fred Ordway

UPPER ATMOSPHERE RESEARCH, carried on by German V-2's, Vikings and other missiles, has yielded much interesting material. These hi-altitude rockets have been working away, telemetering their "observations" down to the earth. For example, a hand grenade was automatically ejected from a fast moving V-2 at a high altitude. Shortly after the discharge the sound was picked up by receivers back on earth. The temperature at that altitude could be determined by calculation, using the relationship between sound and temperature.

The atmosphere itself has been sampled at high altitudes, and investigations conducted concerning its excitation, ionization, and helium-argon ratio. Mass spectrographs, instruments designed for the analysis of various rays, have been carried up in rockets. Hints on future weather conditions come from fast-traveling noctilucent clouds (200,000 - 300,000 ft. up). Effects of "earth radiation" emitted outward into space, and the effects of cosmic radiations on the atmospheric have been analysed. Also studied: The temperature of the sun's corona, the earth's magnetic field at high altitudes; the sun's influence on air circulation; sunspots; and temperature distribution of the Aurora Borealis.

Some missiles have been equipped with microphones with which to pick up and transmit to earth the "pings" registered by the impact of meteoric dust. V-2 surfaces have been found to be pitted by small meteors.

We have all seen photographs of the earth taken by automatic cameras fitted into the research missiles, but it is not generally known that an actual television has been received.

Better rockets are being designed, developed and constructed. As work goes on we may expect to hear about more and more research missiles probing the outer atmosphere and the borders of space for new and exciting information.

Reaction Motors Cooperates in School Training Program

Reaction Motors was one of the local industries which cooperated with the "on-the-job training program" of Wharton High School last month. We had two girls, both seniors taking the commercial course, who worked in the Personnel and Accounting Departments for two weeks.

These students gained insight into the workings of a regular office, plus being paid for their services. This work enabled them to gather experience and develop a sense of confidence, before actually tackling a full time job.

Two girls who worked here were Lorraine Hooper and Barbara Pfau. They are both related to former RMI employees, Lorraine being the younger sister of Irene Johnson, and Barbara the niece of Beverly Pfau.

Activity Report

The following poem was submitted to Mr. Newhall with a recent monthly activity report. Hats off to Ruth Cooper of Accounting who wrote it.

*Our books are closed, our statements complete,
We worked hard our schedules to meet,*

*To Ernst and Ernst the figure we gave
From which the audited statement they made.*

Taxes were submitted before they were due,

Our annual reports were sent out too.

We have Government property received long ago,

*And of its location we do not know,
So, at the present, it's that old, old story,*

We are taking a physical inventory.

*Considerable efforts were extended
So that our cost system could be amended,*

*Much progress has been made to date,
And we are moving at a steady gait.
In February we'll take our chance,
And try out this new advance.*

*That's our activities and we feel great,
Praise, now please, tomorrow may be too late.*

Tax Note

The 1951 Revenue Act allows an employer to enter into an agreement with the employee under which additional withholding for income taxes can be made.

If any RMI employee desires to have the amount of withholding for income taxes increased, he can do so by sending a note to the Accounting Department stating the amount which he wishes to have withheld. This amount should, of course, be in excess of the withholding tax per the standard withholding tables.

Twenty-Five More RMites Get Five-Year Service Pins

On March 5th Mr. Young presented 5-year service pins to the following people: **December** . . . Ray Cogswell, Al Collard, Bob Felberg, Tom Harry, Joe Maynard, Emil Saloky, Ray Zuccheri. **January** . . . Everett Bobo, John Conlon, Joe Ferraro, Sam George, Bob Holder, Bob Monohan, Vinny Stafford, Art Stickle. **February** . . . Ludlow DeMouth, John Fisher, Clinton Mack, Bob Miller, Gerry Perry, Al Smith, Myrt Stickle, Bill Sweetman, Bob VanNess, Stan Zielinski.

Congratulations all of you. Those five-year pins look mighty nice!

"A strange repercussion of high-altitude jet flying is the discovery that dentists have to be especially careful in repairing the teeth of pilots so as not to leave any air pockets under fillings. The trapped air tries to expand as the pilot shoots up into the low-pressure upper atmosphere, causing intense pain."—Newsweek

Over the Coffee-Cups

by Irene Smith

This month, instead of getting directly to the usual news, I would like to acquaint you with the greatest stumbling-block to writing this column — getting NEWS. As most of you know, the actual editing is fairly simple. The difficult part is in obtaining news items to edit.

Your Reporters, Edithy Crandall, Nila George, Doug Mathews and Walt Oberti (Lake Denmark) and Mary Bulger, Jenny Mahoney and Rita Reilly (Rockaway) have all done great jobs, but there again, they alone cannot make the news. You, the readers, are the news. There are approximately 640 employees of RMI, many of whom might perhaps like to write a column of this type. But as it would be slightly ridiculous to have 50 or 100 writers for one column it can't be done that way. Rather, 640 employees making the news can contribute by reporting to any of the above named group. Any suggestions or constructive criticism will be welcome by all of us, so how about it, lets all help.

Flash . . . the Bob Cramers (Engineering) finally made it . . . a boy, Vernon Robert . . . Although the reason of wedding bells is supposedly not yet upon us, we have been informed of a few early birds . . . Ann and Lenny . . . we've mentioned them before . . . have finally gotten squared away on the fishing season and decided on April 26th for their wedding, at Woodberry Heights, N. J. . . . Its been a long awaited merger of Research and Engineering . . . We hear that congratulations are long overdue . . . Joe Lovingham (Test) took the fatal plunge about a month ago . . . Elliot Taylor and Art Sherman are now very ineligible bachelors . . . so take them off your lists, girls, they are planning trips down the aisle for the very near future . . . Ann Bucci has been noticed making starry-eyed plans for a wedding in May . . . Patti Thomas and Charles Case have announced their engagement . . . We've heard it said that Vince Hession has traded his ring for Rita Essig's time . . . Do they really mean it? . . . "Jo" DeFelice was surprised at a shower for her engagement . . . Betty Ball and Edithy Crandall were among the many guests (I was there too, so I can vouch that "Jo" really was surprised).

Life, so we understand, has been rather dull lately in Rockaway . . . which brings to mind that for a little excitement . . . people are beginning to wonder when Betty and Lou Mizsoni are going to have a housewarming for their new home.

Along the Sunshine Train . . . Margaret Greaves, Harlan Tripp and Alex Keyes have been vacationing in Florida . . . the way the weather has been up here, they sure picked a good time for their trips . . . May we say that the following items come under the heading of Sports???

the bruises belonging to Rosemary Ryan, Ray Novotny and Ralph Benson from skiing?

By the way, have you noticed

Larry Heath has returned from his skiing expedition almost as good as new? . . . that Ben Hogan, Test Area Golf Pro, is thought to be adding his score by half strokes these days? . . . that Fred Cresatella is back from Military leave and working in Security . . . that the Test Area in general is looking forward to a big and hotly contested golf season this year? . . . that Ted Neswald is selling all his trout fishing equipment because, sez he, "all the trout in the rivers are not worth the extra license fee"? . . . that Test now claims to have the undisputed swimming champ of RMI, Don Blake? (NOTE: If size means anything no one will touch him.) . . . that Ellen Kelly and Maryalice Miller are up to strange doings which sound like a new version of the numbers racket? . . . that Ann Ostenson is floating on a pink cloud now that George is home.

Anyway, this isn't the Sports Column so lets be on to other items . . . Four new employees to be welcomed to RMI . . . Angelo Sinnis and Neva Hollenbeck to Engineering, Themistocles Ganias (Themis, to you) and Gordon Evans to Research . . . And now for those people we've had to say regretful farewells to . . . Viola Michaels, Peg Osmer, Ruth Cronk and Joan Snyder, all of Engineering . . . Howard Bolton, Research, leaving us for the Marines and Robert Bosworth of Test now serving Uncle Sam's Navy at Quincy, Mass.

On the lighter side . . . Dotty Eagles is understood to be starving her husband (no lunches) . . . "Gabby" Garbarino is planning to build a new home this spring . . . seems he has a BIG problem, how to build a \$12,000 home for \$5,000 . . . can anyone help him? . . . Al Collard is now a full fledged radio "Ham" . . . If any of you know any good contacts, please get in touch with Al — radio contacts, that is . . . Have you heard about Harvey Hull trying a new route to work? . . . He's now back on the old route — no comment . . . And, have you seen Jim Fitzgerald's new secretary? You're in for a surprise cause it's a he . . . Some sources believe Personnel got tired of all his gals leaving for . . . well, anyway that can't happen now!

County Cork had nothing on Rockaway on St. Patrick's Day . . . there was so much "wearin' o' the green" that it wouldn't have been difficult to become seasick if you were so inclined . . . Of course, Bill Kimm and Betty Regan wouldn't know about that since they took the day off . . . Could they have thought it was a national holiday? . . . It seems there has been a sudden change in the Lake Denmark Mail Room . . . any connection between that remark and Joan Murray's new hairdo is purely intentional . . . And now for one bit of parting info for the gals . . . If any of you are interested in saving money, why not contact Arlene Helm — she makes all her own clothes — and is darn good at it, too . . . we understand it only takes a

small amount of cash to get started (about \$300 for incidentals such as sewing machine, material, etc.). . . .

Commoical

With the rocket industry continually keeping a weather eye on possible commercial applications of their products, there is a strong possibility that we may witness rocket engine huckstering via TV and radio in future years. The possibilities are endless. The frustrated copy writers can go all out applying the new product to old presentations. Here's a sample: Scene: Busy intersection of a large American city.

RMI Roving Reporter, microphone in hand, standing by his new 1946 Reaction Rocket Cruiser — 4 cylinder (Spacedrive optional). He flags down a passing car.

Reporter: "Pardon me, sir, may I have your co-operation in performing a simple test?"

Driver: "Coit'ny."

Reporter: "Light up your own engine — which I notice is one of the leading brands — and slowly let the smoke out through your nozzle."

- ? ? Pfft! ! - - -

"Now light a Reaction engine, doing the same thing."

- - - WHOOSH! ! ! - - -

"Notice any difference?"

Driver: "Geez, yeah! Me own brand seems sluggish and irritable and boins goin' through the nozzle. But the Reaction was definitely less irritating, definitely noisier!"

Reporter: "Thank you, sir! So, ladies and gentlemen, as you have seen from this test, Reaction has the world's finest rocket engines. Light up a Reaction in your yard and Poof! — there goes your lawn — err, I mean your power plant worries. So don't be half safe; be completely safe, because RMI engines contain that amazing new ingredient, ACRITENO, which is "Reaction" spelled sideways. They're engine'er engines ! ! !

Easter Greetings

from the staff

of

The Rocket

A MONTHLY PAPER
BY AND FOR THE EMPLOYEES
OF REACTION MOTORS

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H. Loughlin

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| A. Klepp | H. Winslow |
| D. Mathews | W. Wright |

Photographic Editor

Tom Dalman

RMI in Uniform

RMI has been visited lately by several of our men in Service. Bob Jenkins, who is stationed at Corpus Christi, Texas, was home on leave a few weeks ago. Elmer Jerry came in, too. He is now assigned to an Army Personnel office in Virginia. They both look as though working for Uncle Sam agrees with them!

Dick Gehrke, an RMI five-yearer, visited the plant lately. He is now with the U. S. Navy.

Norman Isler's father wrote to tell us that Norm is now in Korea on a road-building assignment. The only mail he has received from the States was his copy of "The Rocket." His address at present is: Second Lt. Norman Isler, 0-2201689, Co. "B," 439th Engineer Construction Battalion, A.P.O. 301, c/o Postmaster, San Francisco, California.

Personnel had a letter from Alwyn Wiebe not long ago. He was home on leave, awaiting an overseas assignment which he thinks will be Europe.

All these boys tell us how much they appreciate mail from their friends, so let's all try to get some letters off to them soon.

Interplanetary Space Travel Subject of Collier's Article

The March 22nd issue of Collier's Magazine has a 15-page spread on interplanetary space travel. Many prominent men in the rocket field express their theories on how and when we will conquer space. It's well worth reading, especially if you're interested in knowing where the rocket industry is headed.

(If you've been reading Fred Ordway's articles in the past issues of the Rocket, you'll recall several instances where he scooped Collier's by months! —Editor.)

RMI Prominent in New IIA

The Institute of Internal Auditors has recently organized a North Jersey Chapter of their internationally known organization. Jim Fay has been named secretary of this new branch, and Hugh Light chairman of the admissions committee. Both these men are in the Audit Department of the Finance & Administration Division here at RMI.

The Trading Post

Information on items to be included in "The Trading Post" next month should be forwarded to Doug Mathews, Experimental Shop, by March 10, 1952.

FOR SALE

BEAUTIFUL 1/2 ACRE LOT: hilltop site with view and all improvements; exclusive Spring Brook section of Morris Township. Contact J. W. Schillinger, Design Engineering.

SINGER SEWING MACHINE: Model 99 K 195; includes all attachments; in good condition; \$50. Contact M. Sherry, Engineering.

LOST

SHAEFFER FOUNTAIN PEN, black with gold trim. If found please return to Betty Regan, Rockaway.