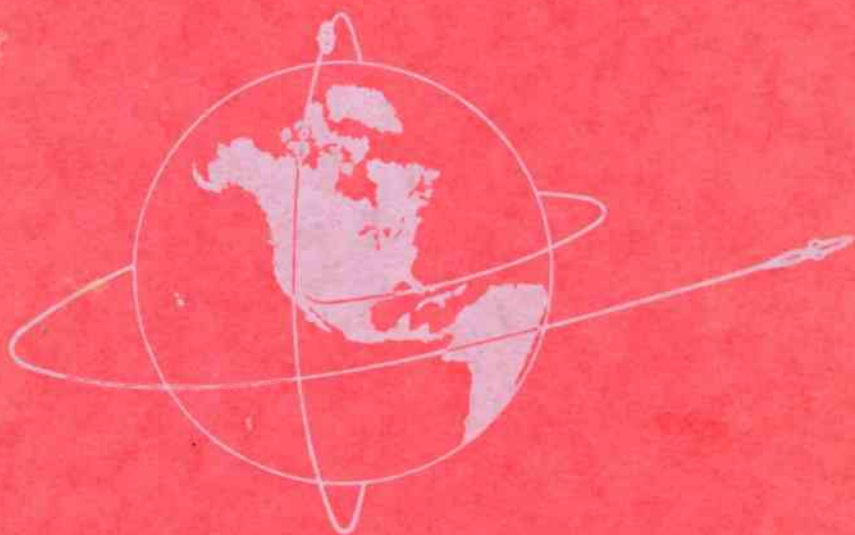
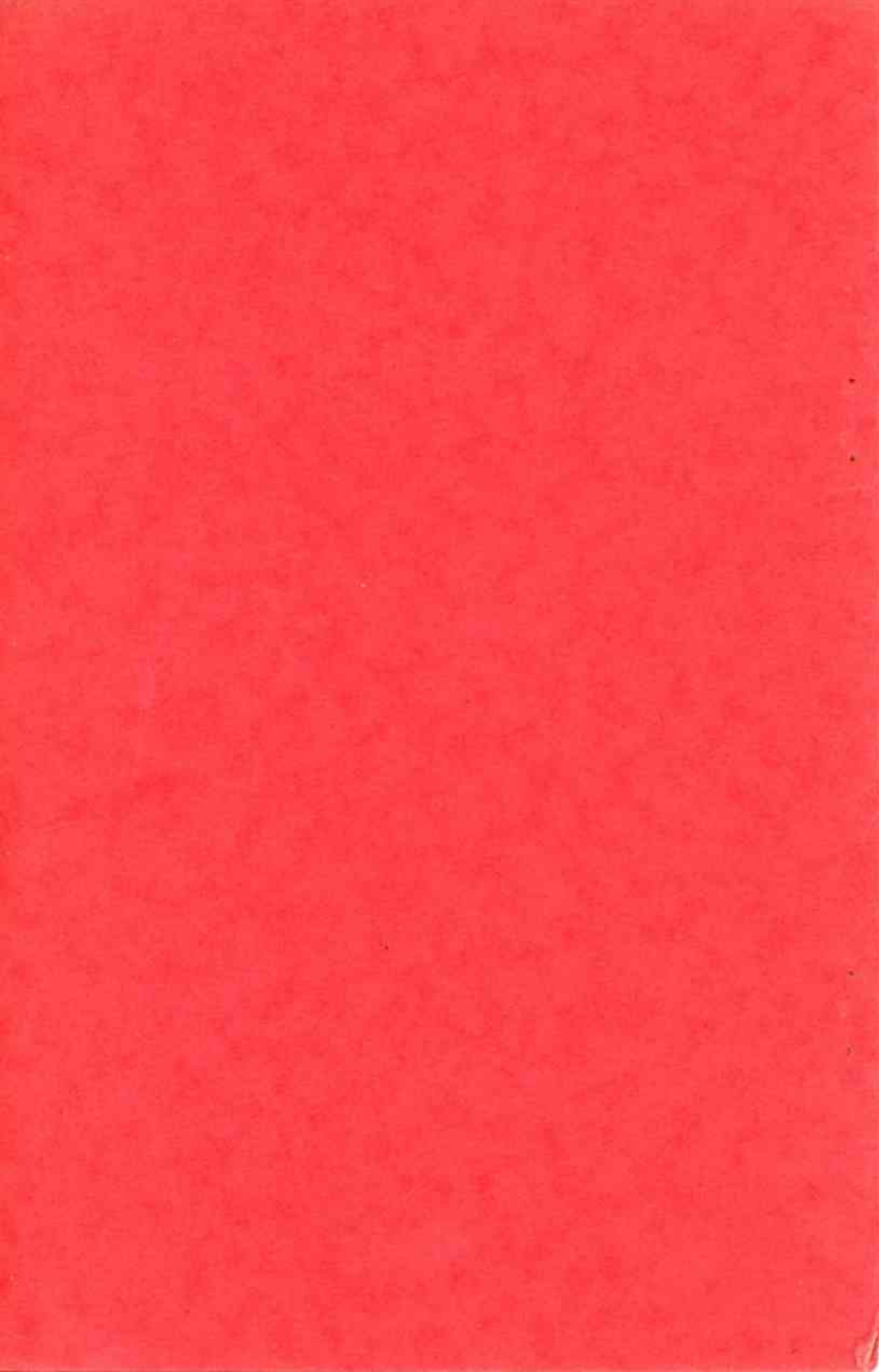


Rockets

The Magazine of Space Flight



Official Publication of
The United States Rocket Society



ROCKETS JULY 1956 Vol. 5, No. 3
Published at Box 271, Pittman, Nevada

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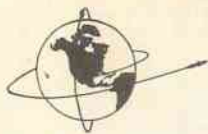
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Inside back cover	(full page only)	75.00
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Page size 5 1/2 x 8 1/2

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\$2.00 per year. .50¢ per issue.



SPECIAL NOTICE

In our March issue, (which, incidentally, should have been labeled April !) we mentioned that we were of the opinion that the industries that were being marshalled in this country to throw up a basketball full of instruments was all out of proportion to the publicized size of the "Satellite" project. We now hear that it is planned to shoot a much larger "satellite" into space: the exact dimensions of which are at this time unrevealed. At the same time plans are being publicized for a high altitude rocket plane, which is to reach heights of 100 miles or more and which will be a manned vehicle for research and investigation of the upper atmosphere. These, of course, are merely preparations for the real interpenetration of space, stepping stones to man's first spacial base ----- THE MOON!

R. L. FARNSWORTH

ROCKETRY MEASURING SYSTEM

The spaceship is now a possibility. Technical advance, science and engineering, are quite capable of such a feat. And the continuously advancing technology in this new field, is every day decreasing the potential cost of such a venture, until the day will come, that a wise magnate, an enterprising corporation, or a pugnacious government, will facilitate the economic outlay needed to make the first, knowledge producing, trip.

The cosmic store of knowledge, just beyond the Earth's atmosphere, provides a superior laboratory, which science will not find hard to tap. And a superior science is the first base to a better technology, which will inevitably foster the practical, everyday standards of any nation. The advancement of knowledge, by scientists, provides en-

gineers with footholds, But science will be handicapped by wartime secrecy, or jealous withholding of results and knowledge. And the greatest boon to science, is the free and easy interchange of knowledge, and the immediate publication and comparison of achievements and ideas. A true scientist is brilliant enough to have no fear that another man might show greater genius from any starting point; that would require great intelligence and too much work. But an average egotist, will crawl into a hole with his lucky knowledge, afraid of superior competition. He might poke out his head when he sees similar knowledge published, merely to claim he arrived there first. Such an egotist, will only be a disgrace to honest and true scientists, not a help.

Interchange and cooperation



will be greatly fostered by recurring to a "common language" and expression and evaluation of results. In science, such a language, is merely the adequate selection of measuring units. Adequate means scientific, or, the BEST possible utilization of effort. Units which are inter-related, will permit the application of simpler formulae, quicker calculations and conversions, and more efficient work.

Such an adequate measuring system is already used internationally in all scientific work. But, in common usage, in England and the United States, hundreds of old, confusing units are still employed. And engineers in both these countries, with decreasing frequency, have to resort to those inconvenient units, which form no real system. Happily, electrical engineers, are leading the field in the adoption of the more practical metric system, which is the ONLY legal system in the United States.

Believe it or not, feet, pounds, gills, pig's-heads, barrels and stones and tons, are illegal in the United States. There is no specific statutory authorization for them. The use of the metric system was legalized by the Act of July 28, 1866. And increasing pressure from industry and export bureaus, will probably made the legal metric system, mandatory before the end of 1957, in this country, after which England will be forced to do the same, or vice versa. The cost of conversion will be fully paid for, according to calculations, in

about a year at the most, from the simplification of science and technology, and the increase in foreign markets.

Such a change, in steps, would be simplified and speeded, by immediate mandatory adoption of the Centigrade thermometer scale. The elimination of Fahrenheit scales, would entail minimum effort. They are not related in any way to other customary units, while Centigrade temps. are related to the metric system, say for instance, to the useful calories. Fahrenheit degrees, being $5/9$ of Centigrade degrees, make temps. of combustion chambers in rockets more clumsy. And Fahrenheit scales are quite unscientific; the Fahrenheit zero, is NEVER used practically, and the 100° selection point, is so ignorantly chosen that the supposedly "fixed" blood temp. is not even 100° F. and is QUITE variable.

The field of rocketry is in its infancy. Present work is not so much technical, as it is scientific. We do not think we have to stress the existence of a handicap, in mixing the practical, legal metric system, with heterogeneous other units, in national and international scientific and technical publications and tabulations and reports, as that is obvious.

The development of rocketry will be accelerated by employing a good, practical measuring system. Not only calculations will be simplified, but tabulations and design can be made more efficiently.

For all calculations, the decimal system decreases useless expense of effort and



4

time. In both, calculations and design, the relation between weight and volumes, eliminates the necessity for many calculations.

If we are designing a new rocket, we will know, that if our structure has the same density as water, the weight in tons of the rocket, will also be the volume of that rocket in cubic meters, or that the volume in liters or cubic decimeters, will give us the weight in Kg. Most fuels can be measured simultaneously by volume or weight, and just moving the decimal point, can furnish larger or smaller units, like Kgs. into tons, or into grams. No need to memorize peculiar fractions, $1/3$, $1/12$, $1/16$, $1/4$, $1/5280$, etc., inherent to the units from the middle or ancient ages.

One atmosphere of pressure is almost exactly one Kg/cm^2 (when $g=980$). One g is 9.8 or 9.31 m/s^2 , or approximately 10 m/s^2 for quick calculations. The speed of sound in dry air at 0° C. is almost exactly $1/3$ Km (331.36 m/s). The velocity of light in a vacuum, quite approximately 300,000 Km/s, and the frequency \times the wavelength (ALLWAYS in meters, or decimal

fracts.) is precisely equal to this constant, for all electromagnetic waves in a vacuum.

Almost all engineers, who have tried the metric system, like we have, feel loath to go back to the older, bothersome, units.

It is no idle supposition to affirm, that the great technological advance of Germany, received great help from the saving in effort and confusion to its scientists and engineers and technicians, by the utilization of such a labor saving system. It is to be surmised, what American and English scientists and engineers, will produce by harnessing an extra 1% or 50% of time and effort, depending on their job.

We, as engineers, and rocketors, propose a complete adoption, in all publications, tabulations, and work on rocketry, of the best, and only legal, metric measuring system.

We owe our present high standard of living to technicians. Let us all provide them with a unified, and better tool in their work.

By ARNOLD G. GUTHRIE

ATTENTION ! ROCK HOUNDS !
5 lbs. of ore samples and red jasper for \$1.00. Many of these will polish beautifully. Shipped express collect. Red jasper alone sells for many times this low price. Send \$1.00 with order to: TUMCO
2409 Isabelle Ave. Las Vegas, Nevada.



"Proof that astronatuics is not solely a male domain, is evinced by the photo above of Miss Laurel Lee Donnell, Hollywood starlet. Moral of the picture semms to be that tho man will conquer the void, and leave earth behind in his vast rockets of the future. Women will still have the entire human race tucked firmly under their shapely arms!"



LE COURRIER INTERPLANÉTAIRE

« C'est une conviction profonde
d'être dévoué à la science
sans pour faire ce qui ne nous
semble pas rationnel »
BERTEAU

« On peut compter une partie
de progrès sur la science et sans
le progrès une partie de la science
mais on ne peut pas toujours
avoir le progrès sans la science »
LEMOINE

Spiritualité • Action anilatmique • Astronéfe • Astronomie • Astronautique • Sciences • Philosophie • Techniques • Astrologie • Mondialisme

2^e Année - N° 16 - 1^{er} Mai 1956 • Organe mensuel de l'Association Mondiale Interplanétaire • Directeur : A. NAHON, 25, avenue Denatou, Louzanne • Suisse : 60 centimes • France : 40 francs
Abonnement 24 numéros : Suisse : 10 francs • France : 800 francs • Belgique : 250 francs

EINSTEIN AVERTIT ENCORE

« Derrière des murailles de mystère on perfectionne avec une hâte fébrile le moyen de destruction collective. Si ce but est atteint, l'empoisonnement de l'atmosphère par la radioactivité et, par la suite, la destruction de toute vie sur la terre, est entrée dans le domaine des possibilités techniques. Tout semble s'enchaîner à ce sinistre déroulement des événements. Chaque pas apparaît comme la conséquence inévitable de celui qui l'a précédé. Au bout du chemin se profile de plus en plus distinctement le spectre de l'anéantissement général.

« Nous ne pouvons cesser d'avertir encore et toujours; nous ne pouvons

pas relâcher nos efforts pour rendre les nations du monde et surtout leurs gouvernements conscients du désastre inavoué qu'ils sont sûrs de provoquer s'ils ne changent pas leur attitude les uns envers les autres et leur manière de concevoir l'avenir.

« Notre monde est menacé par une crise dont l'ampleur semble échapper à ceux qui ont le pouvoir de prendre de grandes décisions pour le bien ou pour le mal. La puissance déchaînée de l'atome a tout changé, sauf nos modes de penser, et nous glissons ainsi vers une catastrophe sans précédent. Une nouvelle façon de penser est essentielle si l'humanité doit survivre.

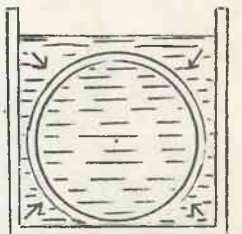
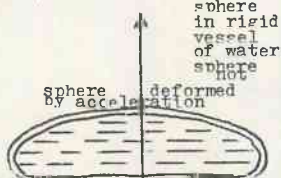
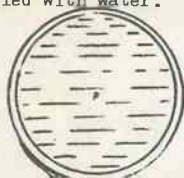
Here is an item from the "Courrier Interplant-

If anyone would like to subscribe to this paper, he may do so by writing to the above address. Prices are also listed. 24 issues \$2.50



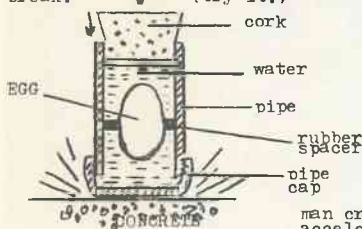
Coming to grips with the acceleration problem. Member Wm.C.Forrest submits hydraulic acceleration principle. The manned rocket can not be developed from the present electronic missile: due to human frailty; and of all requirements that of counter-acting acceleration is the most pressing. While at first glance it might seem that the weight of liquid would make the hydraulic method impossible. However, when it is remembered that WATER is the most necessary substance for earth bred tissues, it becomes a very probable method, with a dual purpose. Water for human consumption and for counter-acting acceleration pressures.

elastic hollow sphere of the same specific gravity as water, filled with water.



dropped break!

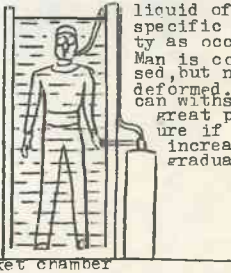
egg doesn't (try it!)



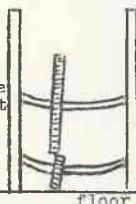
man crushed to floor by acceleration

floor of rocket chamber

Man in tank of liquid of same specific gravity as occupant. Man is compressed, but not deformed. Man can withstand great pressure if increased gradually.

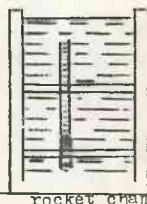


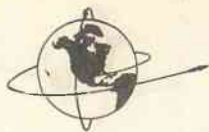
intermeshing gears ruined by acceleration. Illustrates possible damage to instruments.



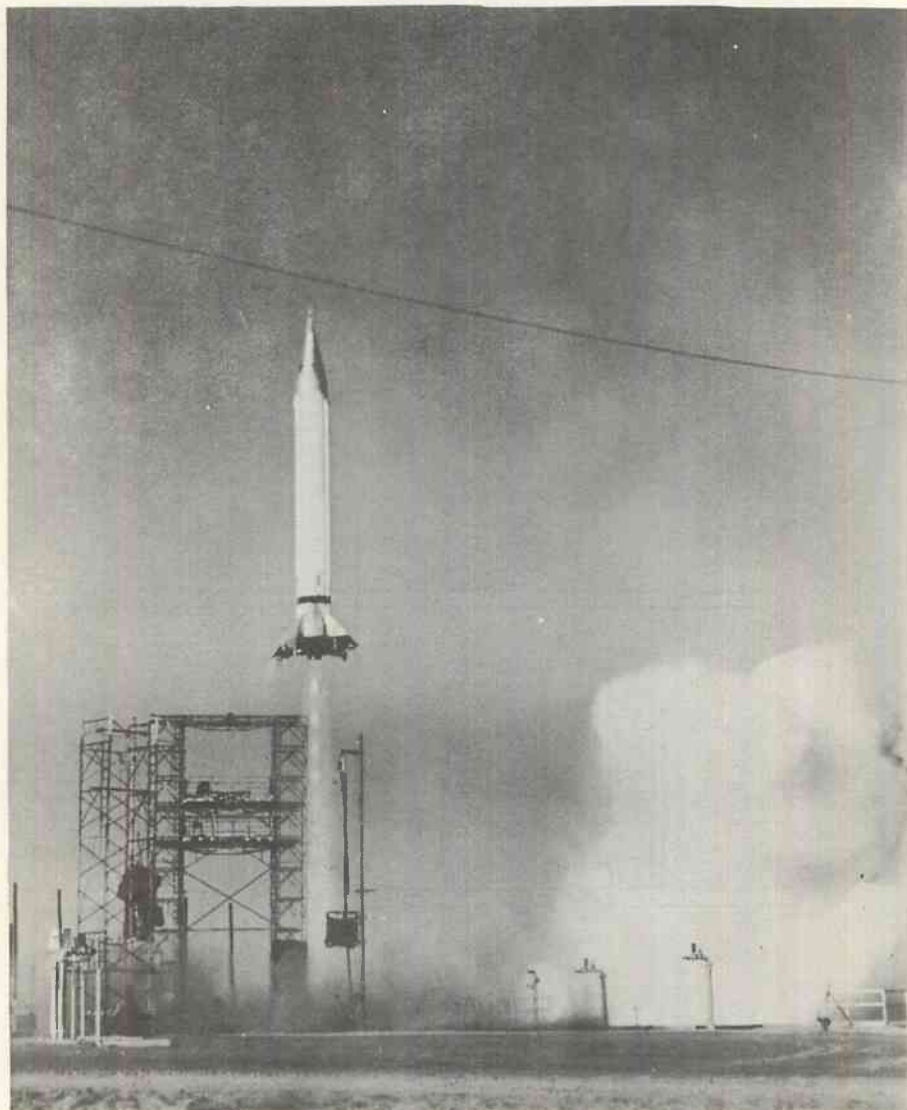
floor of rocket chamber

Intermeshing gears and shafts in liquid of same specific gravity. Unharmful as long as case is not broken or seriously deformed





Think what they will look like ten years from now.





PUBLICATIONS AND MEETINGS

"INTERAVIA, REVIEW OF WORLD AVIATION" is an international publication calling itself the Cadillac of aviation publications, gives you a detailed study of one of the important aviation problems of this atomic age - military, civil, air transport, industrial and scientific ---.

The July 1956 issue is said to be chock full of interesting bits on aviation and rocketry. They also get out a directory of global aviation and guided missiles. American address: INTERAVIA, U.S.A. 123 NORTH GLADYS AVENUE, MONTEREY PARK, CALIFORNIA. Write them direct for information.



Mr. Alan R. Krull, Technical Librarian of Northwestern University, Evanston, Illinois, advises us that there is now available the following publication of the University: "PROCEEDINGS OF THE GAS DYNAM-

ICS SUMPOSIUM" which was presented at Northwestern University's Technological Institute in August 1955. Write to them direct for details of this publication, mentioning "ROCKETS".



We are advised that the "Congres International Des Fusees & Engins Guides" will be held in Paris, France, from December 3 thru Dec. 8, 1956, will be held under the auspices of the "Association pour L'Encouragement A La Recherche Aeronautique (A.E.R.A.)" and the "Association Europeenne

Pour La Recherche et les applications Des Fusees & Engins Guides". Both organizations are located at: 1, Rue de Courty, Paris 7e, France. If interested, write them direct; attention the President, J. Venturini. Our address was given him by Monsieur le Docteur Sanger. Thank you Dr. Sanger!



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(A Nevada Corporation)

Offering 2,000,000 shares

Non-assessable Common Stock, Par Value .05c

OFFERING PRICE: 5c PER SHARE

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Offering circular may be obtained from
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~~General Information, Las Vegas, Nevada.~~

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Centers. To BUY OR SELL IN LAS
VEGAS CONTACT J. CHALMERS
YOUNG COMPANY. Phone: LAS
VEGAS, NEVADA. DUDLEY 4-1830



EDITORIAL

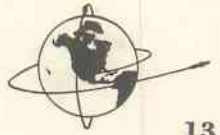
SOME INTERESTING SPECULATIONS REGARDING SIGNIFIGANCE OF LARGE AMOUNTS OF CARBON DIOXIDE GAS, CO_2 , IN A PLANETARY ATMOSPHERE

Recent studies on the atmospheres of the Earth and Planets, admirably condensed in Kuiper's "The Atmospheres of the Earth and Planets", (\$8.00 thru U. S. Rocket Society, Inc.) gives up to date figures on the probable occurence of CO_2 in the atmospheres of Mars and Venus. These figures run approximately to twice as much CO_2 in the atmosphere of Mars as is contained in that of the Earth and Venus is inferred to have a layer two miles thick! These figures are due to much delicate and exacting work with the spectroscope, and values are subject to manifold corrections due to the fact that all of the planets shine by reflected light. While much work remains to be done the basic techniques have been worked out and the expenditure of the price of a few atomic "bangs" in the Pacific would do much to give us a better picture of the "air" around the planets. However looking for a moment at Mars, Venus and the Earth, we are struck by an odd and interesting fact. Many meteoroligists insist today that the Earth is warming up, and that this has happened within historical times. The clearance of the vast forests of Europe, which were in existence in the times of the Caesars, and are now no more, was accomplished mainly by fire. The woodcutter of Europe was a familiar figure for centuries. Colonial and pio



neer America burned huge quantities of wood, and these all added CO_2 to the atmosphere, to further the "hothouse" effect of CO_2 . The industrial revolution brought combustion on an enormous scale, and the rapid increase in the population has released vast quantities of the gas to the atmosphere. There is no real reason why steam power was not invented in the middle ages; it is possible to postulate civilizations without electricity, but with steam. Could it be possible that Venus is a land of medieval civilizations with an economy based on coal? Since it is only within a few hundred years that our economy has been pouring vast amounts of CO_2 into the air, and the quantity is constantly increasing, why not suppose that the Venusians have been doing it for centuries and their oxygen is now hidden under a blanket of CO_2 ? This might make a very depressing civilization indeed; but there is no reason why an economy like that which dominated England for a time could not become world-wide. It was only electricity which saved England from a sooty fate, and indeed, most of the energy of England still stems from coal. Thus we may have a vast civilization on Venus based on a carbon economy, with vast factories pouring out CO_2 and a wretched population to whom there is nothing above but could and nothing below but despair. Should this be the case the first landing of the men from Earth would be interesting indeed.

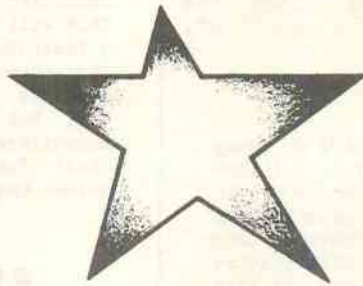
On Mars we seem to see a civilization which soon after pouring unlimited amounts of CO_2 into their clear atmosphere,



realized their folly and took steps to correct it, leaving only enough in the air to keep temperatures in comfortable stability. Or perhaps they too soon graduated to electricity or other means of power.

On Earth there is no let-up in the vast out pouring of CO_2 , in fact, in the far future the worries of people will no doubt be water and air, instead of the trivialities which we find so troublesome. It is ironic indeed to speculate that an increase of science, coupled with a steady increase of population, may constantly create more problems than it is able to solve.

At any rate the presence of CO_2 in the atmospheres of the minor planets is of great interest; due a great measure to the fact that water vapour and oxygen are so difficult to detect, while nitrogen and many of the other gases are said to be impossible to detect with present techniques.



NEWS
RELEASE



GENERAL DYNAMICS
CORPORATION

FOR RELEASE: 6:00 P.M., MONDAY
APRIL 9, 1956.

(This is being simultaneously released in Ft. Worth and New York City:

FORT WORTH, Tex., April 9, -- The U.S. Air Force and General Dynamics Corporation's Convair Division jointly announced today that Convair's Fort Worth plant has been awarded a contract to develop an airframe for a nuclear-powered plane. Amount of the contract was not disclosed.

Convair has been carrying out the first Air Force contract awarded for research and development leading to the design of the airframe of such a plane.

August C. Esenwein, Convair vice president and manager of the Fort Worth plant, said Convair's new contract resulted directly from the company's intensive research and development work under the original Air Force contract awarded in 1951.

'BRAIN'

LEAR, INC. of 3171 S. Bundy Drive, Santa Monica, California, announced today their application for patents on a small "black box" having man-like powers of deliberative judgment. First use of this machine will be in aircraft navigation, however its poten-

tialities are unlimited, especially for space flight. Since it may be necessary in the future to either put pilot and crew of the space craft into suspended animation for long periods of time, or to actually "freeze" them, a machine of this kind is a necessity for keeping a space craft dead on course. The company describes the machine as follows: "---The system provides basic new methods of discriminating automatically between data from any two information sources. It does this through continuous electronic application of the laws of probability and error distribution, in order to deduce from two sets of data, each having known chances of error, intelligence more accurate than either conventional source could possibly provide."

Unfortunately, (and this is a growing tendency on the part of corporations which we think is inevitably fraught with great danger,) the name of the inventor of this device is not revealed. Today the scientific brains of the country are being shrouded in secrecy behind the names of corporations, foundations and universities. This will ultimately result in a lessening of private rewards for invention and will put shackles on the minds of free men. Not the only rewards and incentives in life are financial; fame is also a great driver towards progress.





RARE ITEM

Thru the courtesy of long time member William A. Fiorenza of 814 Hayes St., San Francisco, California, we are reproducing two very rare rocket flight cachets from 1942 and 1945 from Holland. These cover activities of the NEDERLANDSCHE RUIMTEVAART STUDIO, of whose very existence we no longer have any record. Whether or not these flights actually took place we do not know at this time. However both envelopes are cancelled so it may be that the flights were authentic. At any rate they are of great historical interest and are reproduced herewith.



NEW MEMBERS

A few new members who have requested that we list their names in this issue. (Rockets is included in memberships to the U. S. Rocket Society, Inc. Applications for membership sent upon request. To receive an application write to: U. S. Rocket Society, Inc. Box 271, Pittman, Nevada).

Kenneth R. Winter
Box 213
Sinclair, Wyoming

Norbert Murray 111
Box 246
San Anselmo, Calif.

Dennis Shaffer
622 Sylvandale
Toledo, OH10

Randy Allison
2012 Dryden Road
Houston, Texas

Alvin S. Bales, Jr.
1205 Lincoln
Albany, Georgia

Richard Steffl
Box 596
Mt. Pleasant, Ohio

Joseph MacKalonis
324 Ferguson St.
Shenandoah, Pa.

Ronnie Elkins
1838 East Main
El Dorado, Arkansas

Edward P. Pfeiffer
301 Tiffin St.
Fremont, Ohio

David Hartman
655 Jackson St.
Joliet, Illinois



Earl McCullers
424 No. Fifth St.
Smithfield, N.C.

Nicholas Mace
14 Cove Ave.
East Norwalk
Connecticut

N. Kurt Dowd
500 Columbia Drive
Decatur, Georgia

Chris R. Williams
RFD# 1
Nova, Ohio

Don Tate
Box 232
Van, Texas

Benj. C. Montague
248 Rosedale Court
Detroit, Michigan

Darlene Jewell
318 Richards St.
Geneva, Illinois

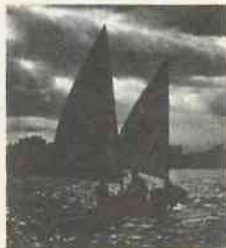
Sharon Burnett
RFD 3, Box 460-A
Alexandria, Va.

Each year a larger proportion of the national effort is devoted to the science of space flight. In keeping with this trend, the Massachusetts Institute of Technology will offer a two-week Special Summer Program in ORBITAL AND SATELLITE VEHICLES

from Monday, August 6, through

Friday, August 17,

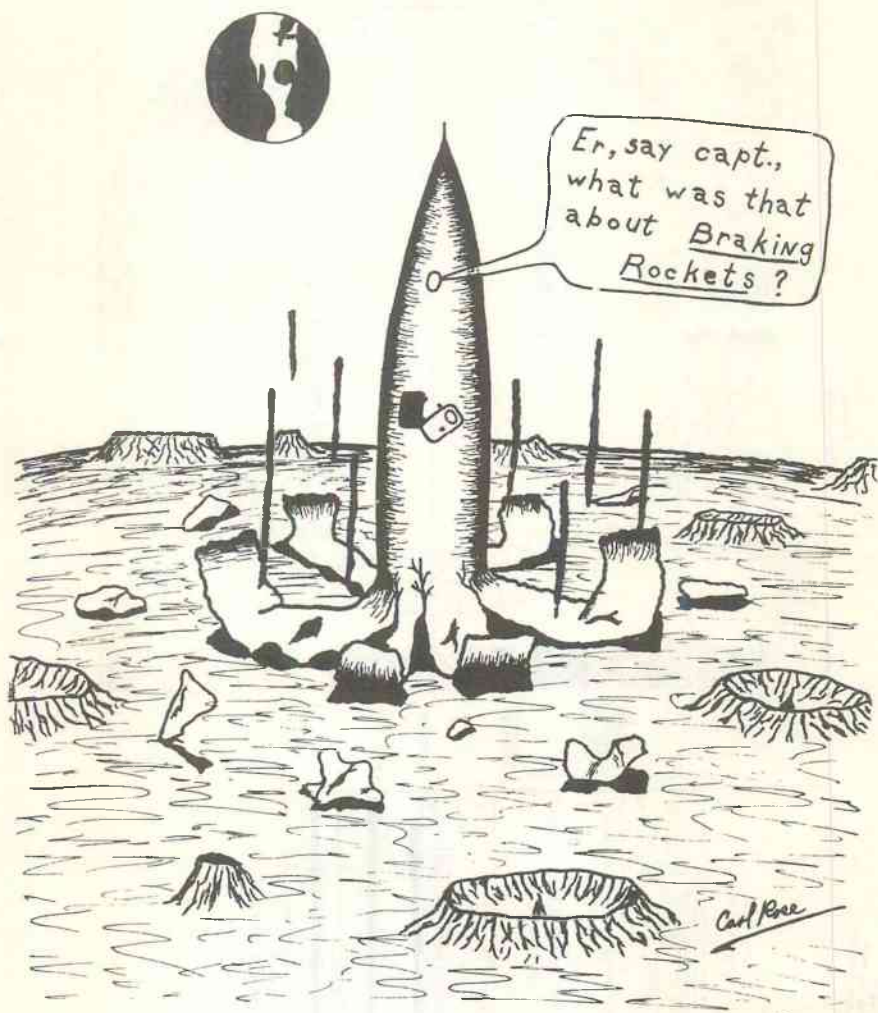
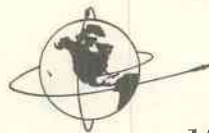
1956.



Project Vanguard is to be the first space vehicle. Its flight in 1957 may well compare in significance with the first airplane in 1903, the first railroad in 1825, the first steam vessel in 1802. New forms of transportation bring about tremendous expansion in scientific and industrial activity.



Just what we said in "Rockets" way back in 1945





Plan for satellite space station drawn
up by member Donald Ritchie in 1945!



SPACE FOR COMMENT —

"I am writing to inform you of a small liquid propelled rocket which a friend and I are embarking upon to build. The fuel will be liquid oxygen and alcohol. Our main problem at this time is the matter of a fuel pump. Could any of the members help us out?"

Kenneth Bird, 2632 Minnesota St., St. Louis, Missouri

We suggest Kenneth that you write to LEAR, INC. for information on fuel pumps.

(We also suggest that any members that wish to get in touch with Mr. Bird; communicate with him at the above address.) B. C. K.

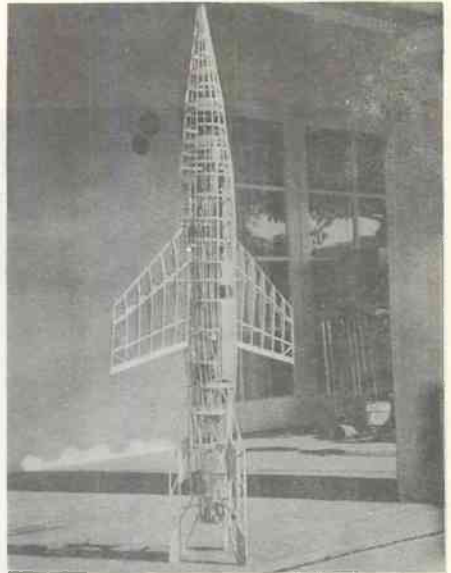
I would greatly appreciate it if you would please place a note in the society magazine "Rockets, The Magazine of Space Flight", under, "Space for Comment", to the effect that I would like to contact any USRS member who is now participating as a Co-op student in the NMCA&MA/WSPG CO-operative program, or who is connected with it in some other way and may be able to give me the "inside dope" on the program.

Very truly yours

/s/Peter E. Laney
209 W. 10th St.
Rolla, Mo.

Dear Sirs:

Enclosed is a picture of my model spaceship. It is 7 ft. in height and is 8 in. wide at its largest diameter. It is constructed of balsa wood and will be covered with very thin spring steel. It is equipped with lighting systems, ventilation system, hydraulic landing gears, microphone and loudspeaker (part of the "two-way" system, that is, microphone and loudspeaker in ship and the same on the "outside". This enables me to speak to



the viewers of the model and listen to what they say.), electric operated doors, television sets (in main cabin, which consists of a series of



mirrors), and almost everything that would be found in a real spaceship (only in miniature). It is also equipped with an "air-lock" that actually removes the air from the "air-lock" and replaces it respectively. I have spent two years on the model and expect to put in another two years. This photograph was taken approximately a year ago. Much more has been done to it. If you want more information on my project, please contact me and I will do the best I can.

If you have any "releasible" information on the flying saucers, please inform me of same. Thank you.

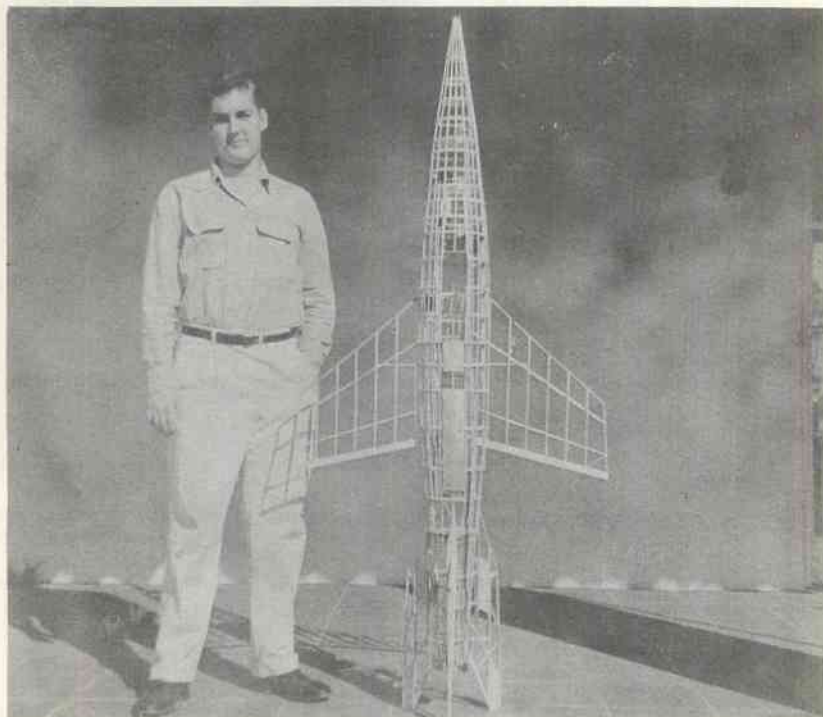
Yours truly,

/s/ Bob Symons
2270 Maravilla Dr.
Hollywood 28, Calif

Yes Bob, we are always anxious to hear about members and their experimentations. How about sending us some finished photos of said project. I'm sure all our subscribers will be anxiously awaiting to see the finished product.

No, I'm sorry but I have not heard or seen anything new in releases on "flying saucers". If, and when, something new comes out you will read it on these pages.

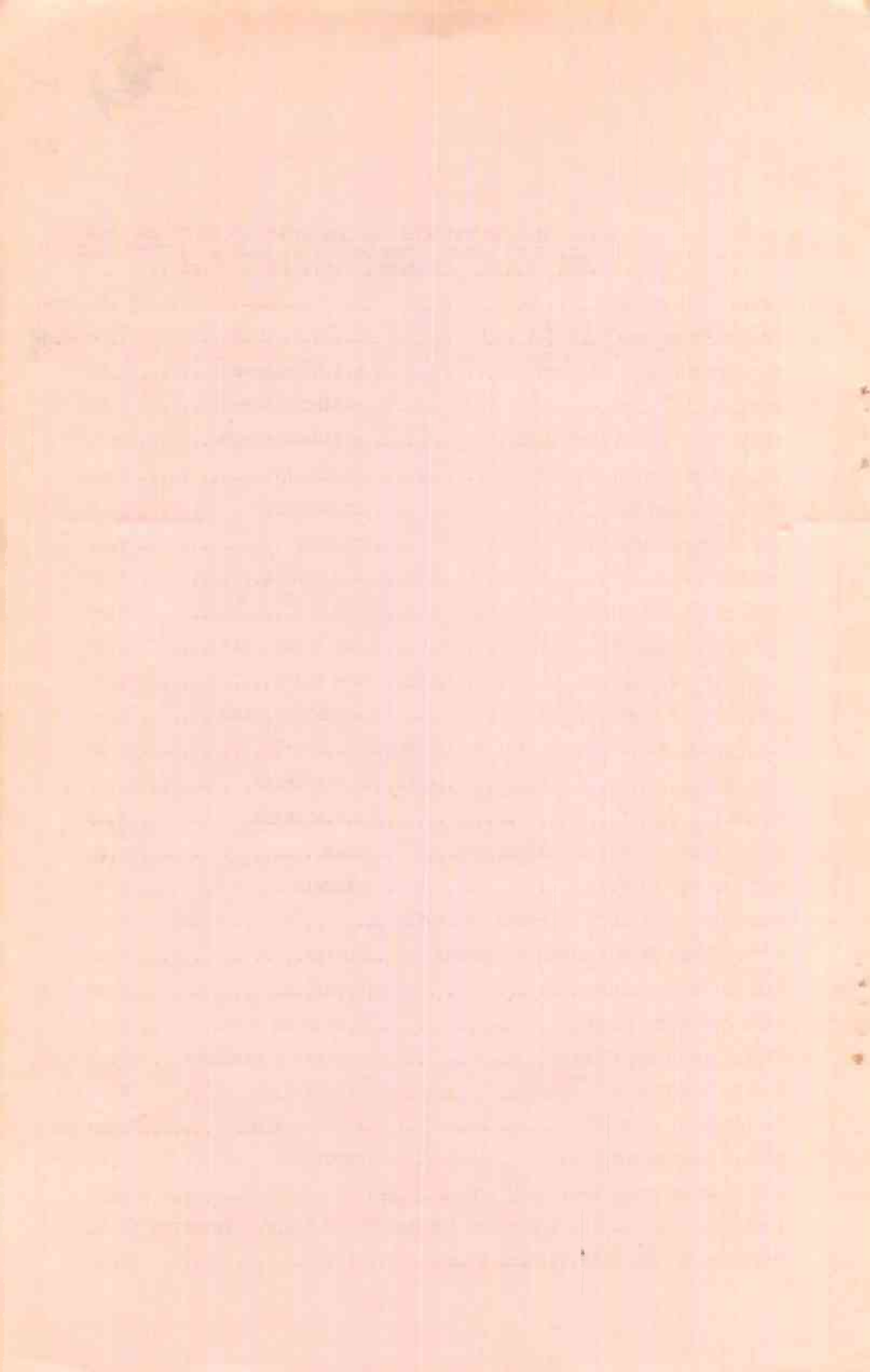
B. C. KIDER





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