

1953

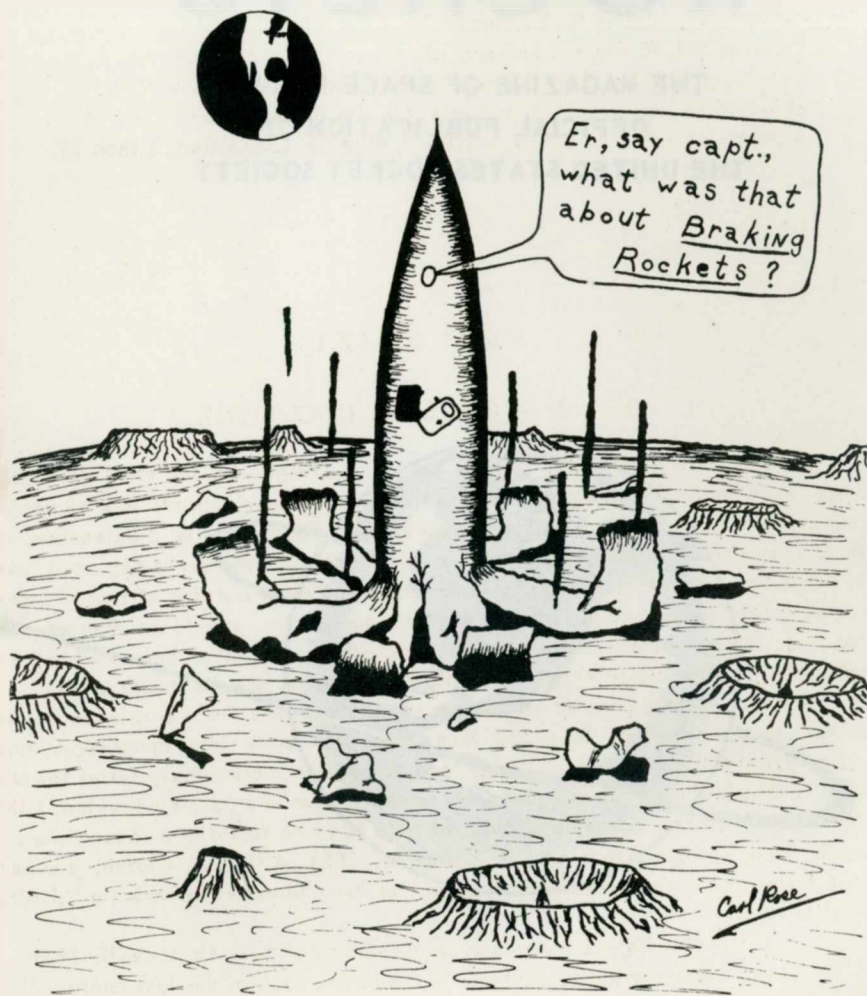
ROCKETS

THE MAGAZINE OF SPACE FLIGHT
OFFICIAL PUBLICATION OF
THE UNITED STATES ROCKET SOCIETY



EDITOR & PUBLISHER:

R. L. FARNSWORTH
BOX 29, GLEN ELLYN, ILLINOIS
THE UNITED STATES OF AMERICA



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EDITORIAL

THE IMPORTANCE OF DISCONTENT

As far as we can tell, Man is the only animal who registers discontent. Dogs, cats and other mammals may not like their environment due to natural causes; too much heat, bugs or enemies, etc. They register displeasure, but not discontent. The old adage, that "a few fleas are good for a dog as it takes its mind off of its other worries", is, of course, a total warping of facts to make a simile for human comparison. A dog has no worries, nor is he discontented. He is as happy with a millionaire as with a bum. He never knows what he is missing in either association -- simply because he has no imagination.

As the world's population increases, the avenues for the release of discontent tend to become less and less. Men grow back into themselves, and, rationalizing their negative attitude, tend to become increasingly bitter towards INDIVIDUALS who do not complacently accept situations as they develop, LIKE ANIMALS. A classic example of this attitude is to be found in a recent story in the Science Fiction magazine "IF", for May 1953. Arthur C. Clarke, a superb story teller and rocket enthusiast, has one of his characters remark (in "Jupiter Five"), quote:

"But no one can claim an astronomical body for himself. That was settled in the case of the Moon, back in the last century."

Fortunately for the future of Man, it is not settled, nor, if we are lucky will it ever be settled. The Universe is not a hamstrung little island. Admirably, it is so constructed that there will always be avenues for escape for discontented individuals; in the immensity of the Universe there is room for every type of government ever envisioned by men, and a lot more that will develop as Man himself develops. Death is the ultimate satisfaction; Life is discontent.

R. L. FARNSWORTH

SPECIAL NOTE TO CONTRIBUTORS !

Please double space and typewrite all contributions which you would like to see in "Rockets", otherwise they will not be accepted by our printers.
THANK YOU !

BOOK REVIEW

"Rocket Propulsion" by Eric Burgess

Here, in our opinion, is the best book for the amateur who is desirous of doing actual rocket construction and experimentation. It contains many cuts, line drawings and illustrations as well as cut-out views of motors, fuel pumps, testing stands, etc. All in all it is one of the best books to come out on general all-around rocketry in a long time. We definitely recommend this book to the experimenter. 235 pages, including an index. Price \$4.50, with usual discount to members when ordered together with other books. See book list in this issue.

BOOK REVIEW

"Physics and Medicine of the Upper Atmosphere" Univ. of New Mexico \$10.00, see book list.

This volume might better be called "Prelude to Space Flight". For that is exactly what it is. Being a U.S. Air Force Symposium of all the myriad fields touching upon space flight. Over 700 pages and 200 illustrations. This book contains all unclassified material which has been released so far on Air Force and University research on problems of space flight. No one can properly say they have an astronomical library until they have this volume.

SENSATIONAL NEW ROCKET SOCIETY DISPLAY !

In order to raise funds to increase the quality of our magazine and to enlarge the scope of our activities, your Society has gotten out a very attractive display, the purpose of which is to get the public to participate in our program. This is a very striking piece of display work; and attracts immediate attention. It is one way in which members can take hold and put over a sound program, at the same time being well re-paid for their efforts. An advertising agency we consulted maintains that this is a very effective way of enlarging popular participation.

Each display is numbered and is simply placed with a druggist, book shop, tavern or other place with a large public traffic. The store owner receives 25% of the receipts, you get 25% and the balance is remitted to your Society. Naturally the slips will not balance with the funds collected, but this has been taken into consideration. NOTHING ELSE LIKE THIS HAS EVER BEEN SEEN, IT IS ACTUALLY SPECTACULAR! Other so called "charitable" displays do not reimburse the merchant for his counter space.

A route of 50 to 100 of these displays should produce a nice income for you, and, at the same time, help the Society to establish the necessary facilities for a civilian rocket to the Moon program.

To handle these you must be established in a particular area, and be somewhat of a promotional turn of mind.

Five displays with all necessary information and full instructions will be sent you for a deposit of \$6., which can be

returned to you out of collections. This is a splendid part-time occupation or side line activity. Your cooperation will be appreciated. Write to: E.H. Swenson, Secy. Box 29, Glen Ellyn, Illinois.

S. G. Dickinson, 165 York St., Bangor, Maine, wants to hear from members out his way. Also suggests "an idea dept." in "Rockets" where basic ideas can be traded with other members. We try to do this as much as our limitations of space will permit. We agree with him that "Rockets" should come out every month but there is a little matter of printing, postage and addressing!

SOUTH AFRICAN INTERPLANETARY SOCIETY

We have been advised of the formation of "The South African Interplanetary Society". Pres. Prof. A.E.H. Bleksley, M.Sc., D.Sc. Chairman: D.M. Young, A.M.I., Mech.E. Hon. Secretary, P. Carlson, A.M.I., Struct. E., A.M.I.W. We extend to them our heartiest congratulations and invite our members in the area to get in touch with them. Their address is: 18 Uno Court, Goldreich Street, Johannesburg, South Africa.

The prime importance of PUMPS !

We should like to call your attention to the great importance to rocketry of the great development of various types of new pumps. Companies in this field are Vickers, Inc. (Div. of Sperry) Lear, Inc., and many, many others.

1953 Science Fiction Convention

For information regarding the 1953 Science Fiction Convention, to be held in Philadelphia, drop a line to:

Lyle Kessler
Box 2019
Philadelphia 3, Pennsylvania

The importance of Heat

W.D. Morgan, Vice-Pres. of the Garrett Corp., made the following statement in a recent address in San Francisco. "It is heat, not cold, that presents the real barrier to supersonic flight, only by overcoming this terrific heat at higher altitudes can man extend his conquest of space." This, of course, is due to molecular friction at great speeds, and may even hold true in space.

White Sands Co-Operative program.

We are advised that the correct way to contact the above student rocket program is as follows; write to:

Mr. M.A. Thomas, Dean of Engineering
New Mexico College of Agriculture and
Mechanic Arts. State College
New Mexico.

Do not write direct to White Sands as all inquiries are forwarded to Mr. Thomas.

Photo below shows one of the very attractive Rocket Society displays close up. Background is brilliant blue, Moon is yellow, rocket and fiery trail brilliant red.



Employment Opportunities

In addition to the many firms listed in the last issue of "Rockets", here are other concerns whose programs include Rocketry.

Northrop Aircraft, Inc.
Hawthorne, California
American Machine & Foundry Co.
188 West Randolph St.
Chicago 1, Illinois

Recruitment Circular

The May issue of the Recruitment Circular put out by the Board of Civil Service Examiners for Scientists and Engineers, Navy Dept., 1030 E. Green St., Pasadena 1, California, consists of 22 pages. Opening range from all types of engineers, and electronic scientist, thru astronomers, metallurgists, optical technicians, physicist, etc. Write to them if you are qualified.

"New Frontiers"

The Garret Corp., 9851 Sepulveda Blvd., gets out a very attractive magazine entitled "New Frontiers" which is distributed to employees and stock holders. We have a few of these which the company was kind enough to give us and they will be sent free on all book orders.

Engineering as a career

Young men and women interested in an actual part in the interplanetary world of the future would do well to write to the Engineering Manpower Commission, 29 West 39th St., N. Y. 18, New York, for information in regard to Engineering as a career.

Young Ladies yearn for space!

One of our newest members is Miss Margaret S. S. Whyte, a young lady of 70. Miss Whyte, a retired Social Worker was born in Bonnie Scotland and has resided in Canada many years. She now resides at 612 S. Fifth St., Goshen, Indiana, and we just have a hunch that she is busier now than when she was working! If the mind is young --- the Universe lies before you,--- whatever your years.

Rocket Head gives talk.

Wednesday, April 29th, it was the privilege of R.L. Farnsworth to address the Science Fiction Club of the University of Chicago. The questions were fast and furious, but agreement seemed mutual that the Conquest of Space was close at hand.

Chicago University Science Fiction Club

Those in the Chicago area who might be interested in the above club are advised to contact Mr. Evan H. Appelman, Room 110, 1005 East 60th St., Chicago 37, Illinois.

"Flying Saucers"

For flying saucer enthusiasts, we rec- a recent edition of "Doubt", official organ of the Fortean Society. It lists several hundred reports of "saucers". Write to them at: Box 192, Grand Central Annex, N.Y.C.

More "Flying Saucers"
"Space Review" edited by Albert K. Bender, Box 241, Bridgeport 2, Connecticut. Devoted exclusively to such phenomena.

LETTERS FROM MEMBERS

Ole Jacobson ---

"I just received my first copy of "Rockets" and it is exactly what I have been looking for. A chance to pick up ideas and a place to get the books I want. Please send me, etc."

917 - 11th St.
Rawlins, Wyoming

Howard Doster ---

"I am very interested in astronomy and quite recently have become interested in the biology of space flight, a subject which I believe can not be too greatly emphasized. I would like to correspond with other members who think as I do in either field."

14904 Morgan Street
Harvey, Illinois

"Dear Sirs:

--Some years ago I built several gasoline rockets of a reciprocating type which were successful enough to warrant the notice of the Univ. of British Columbia and Dr. Harold Smith invited me to attend classes that gave me a fair grounding in rocket propulsion.

It appears that we do not have all the answers about earth's magnetic field. --- the fact that the earth's magnetic pole shifts some miles every day seems to indicate that earth metals are not producers of the display.

I would be glad to hear from anyone interested along such lines."

Hilton Brown
3245 - 47th Ave. S.W.
Seattle 6, Washington

MEMBERS WISHING TO BE CONTACTED BY OTHER MEMBERS IN THEIR VICINITY.

James D. Comstock
11,114 Heatherwood
Houston 22, Texas

S/Sgt. L.F. Cutten, Jr. 1074962 USMC
Hq. Co., Hq. Bn. (Div.Pers) 1st Mar. Div.
FMF, (Reinf) c/o Fleet Postoffice
San Francisco, California
Wants to hear especially from those interested in Selenography and "flying saucers".

MORE INFORMATION ON THE WILKINS MOON MAP

Association of Lunar & Planetary Observers, 1203 North Alameda Blvd.
Las Cruces, New Mexico April 14, 1953

"Gentlemen:

Because of a letter published in your October 1952 issue, from Mr. Wilkins, Prof. Haas was deluged with letters from your members, inquiring as to how a Wilkins Map could be obtained.

The large size 3rd edition can be obtained only seldom on account of printing difficulties in England. A reduced scale map can be purchased for \$3 per copy. This reduced second edition contains more detail than the average amateur astronomer will ever need in his lifetime. The map is by no means obsolete.

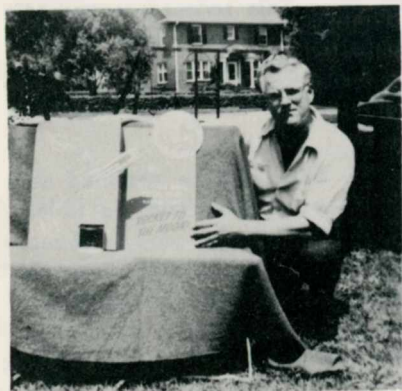
These maps may be obtained at a lesser price by those wishing to join the A.L.P.O. This note may be of interest to the many inquirers who were disappointed by the replies we had to give them in 1952.

Signed: David P. Barcroft, Secy."



"--I thought you might be interested in this pic. Made of the Moon with an Argus C3 connected to my 3 inch Newtonian telescope."

Stephen Kallis, Jr. c/o Lt. Col. S.A. Kallis H.Q. XVI Corps APO 14, c/o PM San Francisco, California.



FLYING SAUCER CONVENTION

Max B. Miller, Pres. of Flying Saucers, Inc. P.O. Box 34, Preuss Station, Los Angeles 35, California, advises us that there will be a Flying Saucer Convention at the Hollywood Hotel, the 16th, 17th and 18th of August, 1953.

Letters from Members

A FEW WELL SPACED THOUGHTS FROM CHICK AT W.S.P.G.

"We Co-op students are doing just fine here at White Sands Proving Ground. There is so very much to learn that it keeps us busy from early morning until late in the evening. Our schedule is a full one. We study and work on rocket projects during the day at WSPG. In the evening we attend night classes at New Mexico A & M. These classes consist of such subjects as Engineering, Math., English, Rocketry, Rocket Photography, and related astronomical subjects. The work is interesting and varied. One project is never the same as the next. The work is inspiring because there are so many exciting things happening during the work period at WSPG. I can not state any specific instances, but believe me, it is primary research toward space travel."

Charles F. Capen, Jr.
Box 857
State College, New Mexico

Photo at the right shows Mr. R.L. Farnsworth with a display, to show its relative size.

"FLYING SAUCERS"

We have had so many fine letters (and a few odd ones!) on this subject that we can simply not find room to print them all. We do wish to list the names however of some of the writers who have very interesting views on the matter in the event that other members might wish to contact them. Their names and addresses follow:

W.G. Goodspeed, Jr. T.D.
603 W. Harding Blvd.
San Antonio, Texas

Charles F. Hilton
1527 Beverly Rd.
Ashland, Ky.

Robert C. Kyle
(address omitted)

Rudolph LaPointe
RFD 6, Caribou, Maine

AMONG THE MEMBERS

Joseph Hildebrandt, 46-01 31 Ave., Long Island City 3, N.Y. sends us a fine photo of the space suit shown at the Intl. Congress at Stuttgart, Germany. It is, however, not in the same category with the U.S. Navy's LATEST suit, as that is strictly for SPACE!

John D. Anspach, 535 North 8th St., Walla Walla, Washington, sends us a dandy cartoon, but omits to draw it in India ink so it will not reproduce at the printers. Try again, Johnny!

Norman Keegan, of 204 Danbury Drive, Syracuse, New York, has been kind enough to send us several news dispatches of general interest. Unfortunately, however, our current issue has been

so late that the news has already appeared elsewhere. We hope the time will come when "Rockets" can make a more regular appearance!

Robert B. Godwin, 2539 Lyndale Ave., South, Minneapolis 5, Minnesota, is very much exercised over our attitude that the Moon belongs to the person who gets there first. We suggest that he talk over the matter of international ownership with a few returning Korea veterans.

University of California, L. A. Space Course

We are in receipt of the following letter from Prof. Samuel Herrick, of the above University, written from Royal Greenwich Observatory, Hailsham, Sussex, England.

"-- My courses on space navigation and underlying celestial mechanics and observational astronomy are:

- 112. Rocket navigation.
- 115. Determination of orbits.
- 107. Reduction of observation.
- 215. Advanced orbit theory.
- 225 A-B. Celestial mechanics.

The 100 series courses are junior and senior level, requiring as prerequisite at least a working knowledge of differential and integral calculus. The 200 courses require eligibility to the graduate division. Each course is directed at least in part to problems that will be solved in interplanetary navigation.

Signed: Yours-sincerely,

Samuel Herrick, Prof. of Astronomy
University of California, at Los Angeles

CORNELL ROCKET SOCIETY VERY ACTIVE

We are in receipt of a letter from Robert Hufnagel, Secretary and Treas. of the above rocket Society. Their mailing address is now: East Mechanical Laboratories, Cornell Univ., Ithaca, New York. Their publication is ROCKET POWER. Engines of 120 and 250 lbs thrust have been tested and fired, with most interesting results. Their 250 lb. thrust rocket will weigh 50 lbs, be six feet, ten inches long and seven and $\frac{1}{2}$ inches in diameter. We will no doubt have additional information on this interesting program in the future.

TIPS TO WOULD BE SCIENCE FICTIONEERS

We have heard at length from Calvin Thomas Beck, 84 - 16 Elmhurst Ave., Elmhurst 73, Long Island, N.Y. about S-F mags and eds. He seems to have all the answers!

Space travel and relativity.

We have a very interesting article by Mr. T. L. Baum, 1400 Lincoln Ave., Norman, Oklahoma, on space travel and relativity. However we can not reproduce the involved formula in our present issue and it will have to wait for another issue. (Worth waiting for!)

LIQUID OXYGEN FOR ROCKETS

by Robert C. Richter

421 Moran Rd. Grosse Pointe 30
Michigan

Any rocket needs two things to produce its thrust. They are an oxidizer and a fuel. Liquid oxygen is a common oxidizer used in many of our larger rockets along with nitric acid. This element is

available in large quantities and has a large energy concentration relative to its weight. Because it is considerably vaporizing, vents and valves must be placed on all its containers. It also has a low boiling point and extreme care must be used in its handling. (Use an asbestos suit!) Fuels used with liquid oxygen are ethyl alcohol, menthyl alcohol, carbon aniline, hydrazine hydrate, hydrogen and octane. A steam generator drives the turbine which in turn drives the fuel & oxygen pumps. The fuel for the purpose of cooling is circulated around the combustion chamber before entering it. Glass wool can be used to insulate the oxygen tanks, and because liquid oxygen does vaporize quickly, it must be placed in its tanks just before takeoff of the rocket. This short summary merely gives the fundamentals, structural details can be gotten from books in the Society book list.

An excellent member suggestion.

Miss Teresa L. Nemes, 1078 Highland Road, Sharon, Pennsylvania, has made an excellent suggestion. Let us quote her: "—The big problem of course is money. I have been doing a bit of figuring and have come to the conclusion that the U.S.R.S. could get \$600,000. within three years IF they had the full support of all the members. --- Why can't it be the non-military citizens of the U.S.?"

Miss Nemes is absolutely correct but it is one thing to levy taxes for money and another one to get a number of individuals to cooperate to this extent, WITHOUT a profit motive. We hope our rocket displays will prove of value in this connection.

Ed.

Reaction Research Society

The above Society, whose address is Box 1101, Glendale 5, California, has put out a very fine April number of their magazine, "R R S NEWS". It contains a splendid article by H. Haber, and other items of general rocket interest. This Society does some quite fine actual rocket firings, having the desert not too far away, which gives them a marked advantage.

100% WRONG !

We have been considerably amused by the recent revelations, widely publicized (in Scientific American, Sky & Telescope, Science News Letter, etc.) by the Astronomers, that the Universe is twice as large as formerly thought and twice as old! If a business man made errors of 100% he would soon be bankrupt; but in Science, anything goes! Actually, it is merely another broadening of Man's frontier, which began when he first clambered upon a floating log and was carried down stream, away from his local cave.

New Proof of Martian Atmosphere

Recent temperature studies of the planet Mars show a time lag in temp. at various surface points that very conclusively demonstrates the presence of an atmosphere.

Soviet Science

Dr. Joseph Wortis, of Brooklyn N.Y., claims it is "short sighted" of the American Medical Assn., which abstracts about 250 foreign scientific journals, does not include one Russian journal. It is worthy of note that pre-frontal lobotomy, that ghastly mangling of the mind, was forbidden in Russia in 1950.

Soviet rocket progress must be rather substantial, yet very little has been reported, perhaps due to their security restrictions.

Project "SATELLITE"

For the information of those who are not sure whether or not there is an active space satellite program NOW in progress, we should like to point out that Project "SATELLITE" is a very highly classified project of the U. S. Army Air Force. As we have repeatedly pointed out in this journal, all the information about the Govts. space program which you read about, anywhere, is unclassified, and thus from two to four years old. We are advised by the Department of the Air Force that eventually some of the basic information will be released; at that time we hope to have it for you.

Rocket Receiver

Donald Stewart, Jr., of 959 Illinois Ave., Elgin, Illinois, sends us a clipping from "Mechanix Illustrated", showing an idea patented by D.B. Driskill of San Francisco. This consists of a series of telescoping tubes, into which the rocket would go head first, guided, presumably by radar. We shudder to think of the results of a miss of a few inches!

"SPACE"

Joseph Barbieri, 67 Pauline Ave., West Haven, Connecticut, is Research Director of "Space". Which is organized for Saucer Phenomena and Celestial Enquiry. They cooperate with the following groups whose interests are similar.

ETRO, 4118 W. 143rd St., Cleveland, Ohio.

APRO, P.O. Box 358, Sturgeon Bay, Wisconsin.
BSRA, 3524 Adams Ave., San Diego 16, California.
FSI, P.O. Box 34, Pueuss Station, L.A. California.
Mr. Lonzo Dove, P.O. Box 255, Broadway, Virginia. Saucer Review, Elliott Rockmore, P.O. Box 148 Wall Street Station, N.Y. 5, N.Y. Members interested in "saucers" are advised to contact these groups.

ADDRESS CHANGES

When corresponding with your Society, particularly about address changes, PLEASE give your membership number! Thank You!

Letters from members.

"Since it seems that the Society Publication not only keeps its readers up to date with the highlights of Rocket Technology, but with developments of related physical sciences as well, it might be of interest that I mention a project under way in Europe which I have been fortunate to observe firsthand.

This will be an inter-European nuclear physics center to be erected near Geneva, Switzerland. The idea was born in America and early plans have been handled thru U.N.E.S.C.O. Eleven nations are participating, and the project will be composed of two sections, an experimental and a theoretical. The core of the center will be two gigantic accelerators, a 600 Mev. synchro-cyclotron, and a 10 Bev. proton synchrotron.

The building of the cosmotron will be headed by my father, Odd Dahl, and is still in the early blueprint stage. The particles will be accelerated by a al-

varex-type linear accelerator prior to injection into the cosmotron, similar to the scheme employed at Berkeley.

Although installation will provide a very valuable contributor to our understanding of the structure of matter, particularly in meson physics; just as great significance will go to the fact that at least in this domain has a group of nations managed to launch and complete a joint task. I feel that this, primarily, is the reason for the project."

Per F. Dahl
Cpl. RA. 17272282
Co. "C", 504th M.P. Bn.
Camp Gordon, Georgia

"I read the editorial in the July issue of "Rockets" and agree wholeheartedly with you. I've read all types of Science Fiction, and they all follow this pattern generally speaking. I still like them tho. I liked Hunter's cartoon. Hope to see more of them in future issues, too."

Robert B. Godwin
2539 Lyndale Ave. So.
Minneapolis 5, Minnesota

Editor's note: We regret that Mr. Hunter is now so occupied with his graduate thesis that he has been unable to send us more cartoons. We agree, we think he did outstanding work.

"I am quite interested in space travel. My two main hobbies are chemistry and S-F. I have made small powder rockets using a mixture of zinc, sulfur, and potassium chlorate. Would like to hear from members in my vicinity".

Kenneth Harris
21 Poplar St.
Massapequa, Long Island, N.Y.

"You have a fine little magazine. How about going monthly and when will it be possible for us to join the International Astronautical Federation."

James Wilson
West Sand Lake
N. Y.

Ed's note: We can do both Jim; if, and when our membership increases to the point where it is financially possible to do so.

Member Robert Kyle wrote to Lois Nixon and asked her what interest a woman could find in space travel. She wishes to answer him through our letter column as follows:

"—I guess its like this. I happened to read an article once called "Cities on Other Planets" in the newspaper. I became so interested that I got some books that very night and began studying. I think that Astronomy is a wonderful hobby for both men and women. I believe that they should work together to make space travel not just a dream but a reality. I do think that the men should take the lead and let the women follow."

Lois Nixon
Springfield, Ill.

"I have been nursing an idea for quite a while. Briefly it is this; that matter & energy are the same thing. This is seen from the fact that all the stars radiate energy into space and it has to go somewhere. This may mean that the planets and stars are contractions of energy to form matter. I would be glad to hear from fellow members."

Harold E. Garey, Jr.
70 Redington St.
Swampscott, Massachusetts

Victor L. Johnson
RR 2, Box 233
Dayton 10, Ohio

Arnold G. Beatty
5554 Neff Rd.
Detroit 24, Michigan

Donald O. Marker, Jr.
2391 DeCamp Ave.
Elkhart, Indiana

PFC E.R. Mabeus
US 55-288-382
Div. Arty. Ai.. Sect.
1st Cav. Div. APO 201
c/o P.M. San Francisco

Raymond Burton
15 Woodbridge Rd.
Newington, Conn.

Ronald Navratil
633 So. Meade St.
Denver 19, Colo.

J.L. Cable
Rte 3, Box 29
Ferndale, Wash.

Ray Schaffer, Jr.
122 N. Wise St.
N. Canton, Ohio

J.C. Jacobson
917 - 11th St.
Rawlins, Wyoming

Kent Corey
Box 64, 1118 W. Broadway
Enid, Oklahoma

ROCKET ASSOCIATES, INC.
BOX 29, GLEN ELLYN, ILL.
THE UNITED STATES OF AMERICA

ANNUAL STATEMENT 1952

Sales; 1952 \$ 2235.81

Expenses

Cost of Books	\$ 1540.35
Postage	145.00
Utilities	77.36
Sales Promotion	191.09
Advertising	117.20
Taxes	17.90

\$ 146.91

Assets

Cash on hand	\$ 156.76
Dec. 31, 1952	
Book inventory	360.90
Tools, Furniture and fixtures	549.90
Postage	27.30
	<u>\$1,094.86</u>

Liabilities

Common stock, no par
Issued 830 shares

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MEN OF OTHER PLANETS. K. Heuer, (Hayden Planetarium)	3.00
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EXPLORATION OF SPACE. Arthur C. Clarke	2.50
MARS (First NEW book on Mars in 20 years) de Vaucouleurs	2.50
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200 MILES UP! Lt. Commander Vaeth, USN	4.50
ACROSS THE SPACE FRONTIER. Symposium, lavishly illust.	3.95
THE CONQUEST OF SPACE. Ley and Bonestell	3.50
ROCKETS, MISSILES & SPACE TRAVEL. LEY, 436 pages	5.95
ATOMIC ENERGY. Smyth, (Princeton Univ.)	2.00
STARS. (Astronomy in an illustrated pocket edition)	1.00
THE NATURE OF THE UNIVERSE. Fred Hoyle (noted astronomer)	2.50
SPACE MEDICINE. Marbarger, (Illinois Univ.)	2.50
ROCKET PROPULSION ELEMENTS. Sutton	5.00
APPLIED NUCLEAR PHYSICS. Pollard & Davidson	5.00
THE PLANETS, THEIR ORIGIN & COMPOSITION. H. C. Urey (Yale Univ.)	5.00
THE FACE OF THE MOON. Baldwin (Chicago University)	5.00
MATHEMATICAL THEORY OF ROCKET FLIGHT. Gross	5.50
ROCKETS. Robert H. Goddard (a classic)	3.50
ATMOSPHERES OF THE EARTH & PLANETS. Kuiper (Chicago Univ.)	8.50
1952 AIRCRAFT YEARBOOK. (Everything about aviation and rockets)	6.00
PHYSICS & MEDICINE OF THE UPPER ATMOSPHERE, (Univ. of New Mexico)	10.00

(A U.S. Air Force symposium of 700 pages, 200 illustrations, this
book is a MUST for every astronomical library)

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