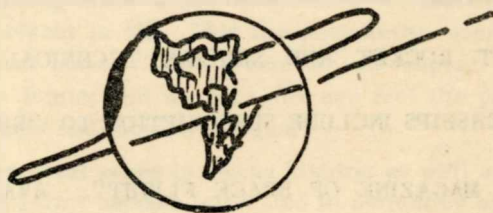


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ROCKETS

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

If there is one eternal verity upon which we poor struggling Terrans can lean, it is the fact that all human institutions change. As generations follow generations; great organizations, vast civilizations, and whole races of men and animals, pass into oblivion. As the very nature of the people who make up a civilization change and are forgotten, and new styles in thinking make them "obsolete", we are still prone to assume that the present is all. That the past never existed and that the future will never come. This is true in one respect. You and I will never see the future; and we only see and feel the past thru our differing environments and racial heritages.

Yet there have been great pages in human history; as well as incredibly stupid ones. When I first became interested in astronomy and rocketry, the only works to be found were those of Jules Verne and the early pages of the "Electrical Experimenter", (Hugo Gernsback). Today, in seeking material for "Rockets" we are overwhelmed by material which flows in a constant stream. The pages of daily papers, scientific journals, government releases and publicity splurges, all reflect the great momentum of the INTERPLANETARY quest. For make no mistake, that is just what it is. Corporation after corporation, with government money, delves further and further into the realms of research that point to the Conquest of Space.

It is very possible, that should another world-wide depression ensue, men's energies will for a time be succored from the money scramble, and out of more research, and less government money, will come private impulsions to Conquer Space! The present overshadowing by the military may give place to good old fashioned CAPITALISTIC PIONEERING! That will bring us to the RENNAISSANCE. And the next great wave of prosperity will be based on the CONQUEST OF SPACE!

R. L. Farnsworth 4/1952

THE DISTAFF SIDE

In the last few months we have been getting so many feminine members that we think that we can now correct what seems to have been a very wide spread canard upon American Womanhood. That is, that all women joining Rocket Societies wear thick glasses, sing the Third Internationale, and have stringy hair. All you need to do girls, to prove this a churlish lie, is to send us your photos, in your favorite pose. We hope to be able to run illustrations from now on and will try a contest for "Miss Rocket" of 1952. Another thing we need is a girl reporter or two to give us articles on the feminine interest in rocketry and space travel in general. We have such an excellent reporter in England, in the person of Mary Patchett of London. How about a few, State side?

We are advised by Mr. Eugene P. Conolly, Pres. of Aircraft Trade Shows, Inc., that the first International Exhibition of Aircraft Parts and Equipment will be held in New York's Hotel Park Sheraton from June 17 to June 19, 1952. The trade show will present a comprehensive picture of the entire aircraft equipment field. Address: Aircraft Trade Shows, Inc. Hotel Park Sheraton, 55th St. and 7th Ave. New York 19, New York. A preliminary survey indicates that there is widespread interest in this show in Europe as well as in the entire Western Hemisphere. Plans have been made to give special assistance to foreign visitors to the exhibit.

LEAR ANNOUNCES NEW AIRCRAFT VACUUM PUMP.

Lear, Inc. Romec Division, Elyria, Ohio, announces model RG-7730-1 vacuum pump. For the camera on Mars, listen to this: "Electric driven vacuum pump maintains required pressure differential for camera operation is aircraft. Oil - Less operation. Starts cold at -- 65° F! The Conquest of Space goes on in Americas industrial laboratories.

LETTERS FROM MEMBERS-----

From R. Ritter, Memphis, Tennessee :

"I have just received the Jan. issue of "Rockets" and just thought I would compliment you on producing such an entertaining and informative little bulletin. Your editorial was excellent and so was the article on the British Woomera Rocket Grounds in Australia. - - -

Sincerely, R. Ritter"

From Cpl. Kenneth A. Kiley AF 19406910, 18th AF Hq. Sqdn. Donaldson AFB, Greenville, S.C.

"I am deeply interested in the furtherment and development of rockets and space travel. I will shortly be returning to college as my reserve enlistment is rapidly terminating. Your monthly journal I feel would be of great value. Also, I know there are many students, particularly in the engineering field, who would be only too anxious to join if they were aware of your organizations existence.

The future of our country and the world lies in the activity of organizations such as yours. This fact has been proven in the past, by the initiative and stimulation, in progress and development in other fields by organizations operating on a basis comparable to yours. Their efforts brought about eventual success.

With sincere wishes for the success of your organization, I remain,

Kenneth A. Kiley, USAF"

From Clyde Stauffer, 611 Eight St. Wahpeton, North Dakota

"I am a recent entry into your rocket society, and I must say that I am very pleased with the results. I am especially pleased with the book provision of the club. "

Sincerely, Clyde Stauffer"

THE INTERNATIONAL ASTRONAUTICAL FEDERATION

This organization is now located as follows: Secretarial address: P.O. Box 37 BADEN, SWITZERLAND

It appears from material we now have on hand that substantial progress is being made in the direction of an International Astronautic Federation. For the time being however we must abstain from joining due to the requirement of ours that would require member voting.

A NEW POTTING - SEALING - ENCAPSULATING COMPOUND.

The B.G. Forman Co., Inc. of 181 Throop Ave., Brooklyn 6, N.Y. announce the advent of "POLYFORM", a group of compounds especially formulated for potting, encapsulating, sealing, embedding and impregnating electrical, electronic as well as mechanical components and assemblies, to insulate such units against shock, heat, vibration, moisture corrosion and electrical forces in a wide range of frequencies. for further information write to them direct.

NEW HELICOPTER BOOK.

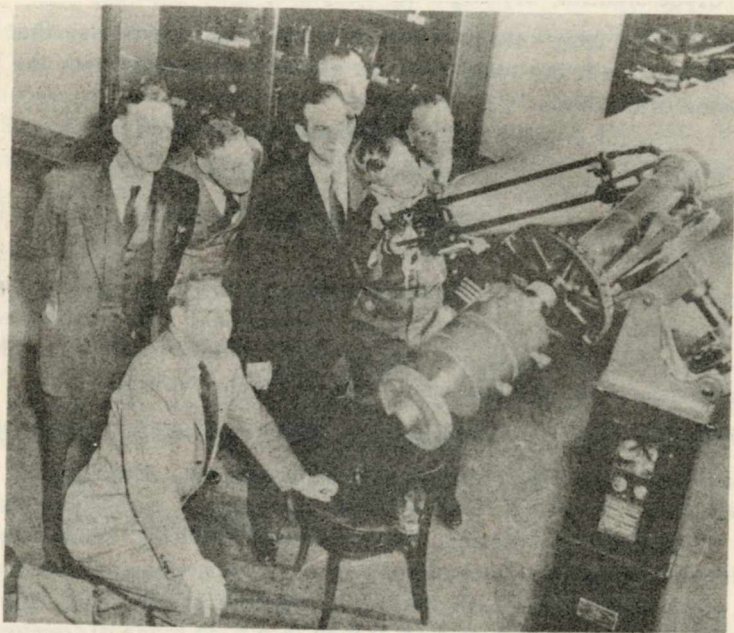
John Wiley & Sons, 440 Fourth Ave., N.Y. 16, N.Y. book publishers, announce a new book on Helicopter Engineering. "HELICOPTER ANALYSIS by Alexander A. Nikolsky. Prof. of Aeronautical Engineering, Princeton Univ. 340 Pages. 182 Illustrations. 6 x 9 1/4 cloth. Price, \$7.50. Please order direct from publishers as it will not be carried on our book list due to its being a little out of our field.

THE BULLETIN "CAT"

We have mentioned "The Bulletin" before, however it is so interesting that we do have to give it another whirl. The full name of the company, headed by C. L. Chenault, Chairman of the Board, is "Civil Air Transport". It is printed in two or three languages and makes very enthralling reading for those who dream of "far away places". If you want a copy try writing to: CAT, Naka 7th Bldg. Marunouchi, Chiyoda-ku, Tokyo, Japan. No charge per copy is given but \$1.00 should get you a copy we are sure.

CELESTIAL PASSPORTS

Tho the British Interplanetary Society completely disowns any connection with them, there is considerable confusion in this country about just who did issue these amusing little documents. They cost \$5.60 and come from some chappie in England who, so it says, gets them out as a "hobby". (at \$5.60? a hobby yet?) Any way your patient ed was rung in on a promotion of presentation of one such "passport" to



Barry Carroll, an 8yr old lad of the Chicago area. The clambake was promoted at the Adler Planetarium in Chicago and was attended by a representative of his Majesty's Govt. Ronald F. McKeever, British Vice-Consul in Chicago, John Retaliata, Pres. of Illinois Institute of Technology, Del Newman of the Boy Scouts, Cyril K. Wildman, U.S.N. A.F. and lastly, with his noggin just appearing as if it was in the glass case behind him, R. L. Farnsworth, Pres. of the U. S. Rocket Society. It was all good fun and the show was put on by Jean Campbell of the Burton Browne advertising agency, Chicago, Ill.

NEW POTTED PLUG-IN HIGH-GAIN AMPLIFIER DEVELOPED BY ERA FOR LOW-SIGNAL-LEVEL, LOW-FREQUENCY APPLICATIONS.

Since all new developements in electric and kindred fields as applied to aircraft are also applicable to the space rocket, we make a policy of reporting them as they come to our attention. Engineering Research Associates, Inc. Dept A, 1902 West Minnehaha Ave., St. Paul 4, Minn. are very active in this field and inquires directed to them will be appreciated.

APRIL RECRUITMENT CIRCULAR RECEIVED.

The April number 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., lists openings up to \$9600. per annum for scientists and engineerings of many kinds. Many of the openings are in lines directly applicable to rocket study. Write them at the above address if you are qualified in such fields. If you are not qualified you had better start planning your education NOW, as space flight will require literally thousands of trained scientists and engineers.

Membership lists will be found loose in this addition; going only to members of the Society. This saves printing costs and prevents list from falling into hands of mailing list compilers.

FLASH NEWS FROM ENGLAND -- MARY PATCHETT

"The last British Interplanetary Soc. meeting was on Sat. night last. Lecture by Prof. Lancelot Hoghen about communication with extra-terrestrial beings. It included a lot of, (to me) elaborate symbolic slides, and he seemed to think that if it couldn't work out this basic framework no planetary being would be fit to live with. All right! I'm not fit to live! -- Arthur Clarke is going to America. Has offers of TV and the Book of the Month Club. English Fiction writers are having a do on May 31st. -- might be fun. The BIS is to get more room.

LEGAL QUIBLING "BEFORE THE FACT".

Nothing is more amusing in the whole field of astronautics than the grave promouncements that are being made today about the legal angles. One of the latest of these was aired in the Jan. issue of the Journal of the B.I.S. An Oscar Schachter, who has a cushy legal job at the United Nations, "free lunch on Uncle Sam", has come up with the idea that War should be outlawed in space and that the entire universe outside earth should "— remain free for use by all". Such a naive approach to what will be a power problem for all the billions of years ahead seems incredible in a man of Mr. Schachters ability, -- but looked at in the light of his United Nations connection it becomes understandable. Nations which can not get to the Moon first will naturally want to get on the gravy train. Let Uncle Samuel pay the bill

and then pass out the free lunch. We can find no place where the UN has opened the Antarctic to all, quite the contrary. Nor do Britain, France and Belgium throw open the gates to their vast African Empires. Make no mistake about it; the Moon, and then all of space, will belong to whoever "gits there fustest; with the mostest"! Fortunately, there are planets enough for all -- in fact, that is the understatement of the year! Thruout all history, law tags along behind the pioneer, not before him.

RUSSIA MAKING ASTRONOMICAL PROGRESS

Russia has always had fine astronomers, and we understand from reports filtering in from abroad that Russian astronomers have been doing some fine work on planetary observations in the last few years.

PROPHECY DEPARTMENT

In analysing all the articles on the planets that have come across our desk in the last ten years we are struck with the almost constant flow of contradictions. The only conclusion is that you might as well throw them all out of the space hatch as soon as you get into a planetary atmosphere. The baffling problem is to figure out what we see, BY REFLECTED LIGHT, thru OUR HEAVY ATMOSPHERE. It is curious to reflect that the conventional astronomers, who have ever derided space travel, (with some notable exceptions like the brilliant R. S. Richardson) will no doubt burst their buttons to get into that Lunar observatory and point their telescopes and spectroscopes on the Sun, Stars and Planets, from an airless world. For a quick run thru, here are a few new ideas. The recent theory that Pluto, Neptune, Neptune, Jupiter, Saturn and Uranus, are masses of rock, Ice, methane gas and ammonia, is already out of date. In the case of Jupiter we are coming back to the self lighting and heating theory of the early 1900's. (When the textbooks said Jupiter shined by its own light.) Another, the red color of Mars is not due to all the oxygen being locked in the rocks, but is an atmospheric effect. Get on the ball Science Fiction Writers, step right up and get the latest theory. Another, that Venus is not a dry and dusty planet (that was very new and shiny) but the great amounts of carbon dioxide may blanket in oxygen in enormous quantities. Take your choice or better yet, get aboard that ROCKET TO THE MOON!

DONATIONS AGAIN ACCEPTED BY THE SOCIETY

To enable us to get out better and better editions of "Rockets" we are badly in need of donations. These may be deducted from your income tax as we are a not-for-profit Corp. In addition we will give a membership button FREE with each donation of \$10.00 or more. You may also include us as a beneficiary in your will. Again, life time memberships are available at \$25.00 each. It is ironic to think of the billions we have wasted abroad and yet an AMERICAN rocket enter-

prise has to solicit funds from its members and the public; but that's the way it is! Remember, Money makes the "ROCKET" go!

COLLEGE PROGRAM AT WHITE SANDS

WHITE SANDS PROVING GROUND -- Mar. 27 -- A college and training program, never before attempted by a military installation, was approved Tuesday for White Sands Proving Ground by the Civil Service Regional Director at Denver, Colo. The program will enable high school graduates to earn degrees in engineering, mathematics and physics by alternating periods of practical field work at White Sands Proving Ground with academic courses at New Mexico A & M College.

The joint training and educational plan was initiated by Brig. Gen. G. G. Eddy, commanding general WSPG, and Dr. John W. Branson, pres. New Mexico A & M College, to provide qualified and capable engineers and physicists for White Sands Proving Ground. In framing a practical curriculum for the program, Melvin A. Thomas, dean of engineering at A & M, executed a plan whereby a student may graduate as a full fledged engineer with a permanent position and have five years of specialized experience.

The plan is a five year program beginning in the freshman college year. Students will attend New Mexico A & M College for a period of six months and work at WSPG the succeeding six months, continuing this study and work system until graduation. During the period of on-the-job training, students will be paid by the Ordinance Corps. First year trainees will be paid on the basis of \$2500 per year for the six months working period.

Arrangements are being made to accommodate approximately 260 to 270 student trainees the first year, half of which will take classroom work at A & M College while the balance will be on training status at the Proving Ground.

Trainees will be permitted to live on the college campus during both the academic and on-the-job training periods. The Proving Ground will make available a full time personnel counsellor for students during the training periods, L. L. Guess, civil service training officer at WSPG, said.

To be eligible for the program, an applicant must be a graduate of an accredited high school, acceptable for admission to the college, and pass a civil service examination, the training officer pointed out. Upper classmen may enter the program at various college year levels by passing the appropriate civil service examination.

OPTICAL INSTRUMENTATION AT WHITE SANDS PROVING GROUND

WHITE SANDS PROVING GROUND -- Mar. 27 -- Optical instrumentation is a primary means of tracking rockets and recording flight at White Sands Proving Ground. One of the largest telescopes used in Ordinance activity is located on the crest of a mountain, 4000 feet above the desert floor of the Proving Ground, according to Clyde W. Tombaugh, physicist and astronomer of flight determination laboratory at WSPG. Under good atmospheric conditions the black and white painted fins of large rocket are readily discernable at a height of 100 miles through the telescope, Mr. Tombaugh claimed.

The giant optical instrument is mounted on a 90 mm gun carriage and equipped with a 35 mm camera attachment. It is a reflecting telescope with concave mirror, 16 inches in diameter and an equivalent focal length of 25 feet, the scientist disclosed. The telescope is located 40 miles northeast of the Army rocket launcher.

Attached to the massive telescope is a small guide telescope with six inch diameter lens of 60 power, used by the tracer to follow the flight of the missile. "Considerable skill is involved in this operation by the tracer to manipulate the sensitive manual guided mechanism", Mr. Tombaugh explained.

Situated on a peak in the Sacramento mountains, thus minimizing dust and heat waves, sharper pictures can be made. The telescope is positioned to command a view of the entire Proving Ground and follow the rocket from the time it is fired until impact. The camera records pictures of the missile at the rate of 16 frames per second for the entire flight. The electronic coded time is recorded beside each picture. The telescope station has instant communication with the camera control station near the launcher.

TELEMETRY AT WHITE SANDS

WHITE SANDS PROVING GROUND, --- Mar 26 -- "Telemetry, as applied to guided missiles, is concerned with obtaining information from the rocket while in flight and conveying this data to observers on the ground for study and analysis," Sgt. Carl E. Haskett explained while adjusting dials on a telemetry check-out panel with Sgt. Joseph E. Angerman. Among the many gadgets on this panel is a screen, similar in principal to the television screen, which actually shows what is happening within the missile while it is in the air. The items of information are in a series of vertical lines on the screen which only an engineer, trained in telemetry, can understand.

The two sergeants hold college degrees in Engineering Physics. Sgt. Haskett earned his B.S. at Oklahoma University, while Sgt. Angerman is a graduate of Moravian College, Bethlehem, Pa. They came to White Sands Proving Grounds from Fort Meyer, Va., Dec. 23, 1950, and have lived and worked together, following identical careers, since the day they met at Ft. Meyer. Both men were assigned to telemetry upon their arrival at WSPG. Their work in this field has been to conduct check-out tests on units used and the modification of the units to meet specifications of the officer in charge.

Sgt. Haskett was articulate in giving evidence of the great strides in telemetry by citing former systems used in this field. Formerly, he explained, in order to determine the internal behavior of a missile in flight, the dials and gauges representing the desired information were gathered together in one compartment of the missile, and a camera was so placed that the readings and dial positions were recorded on film while the missile was actually hurling through the air. Then, after the rocket crashed to earth, it was hoped that the film could be recovered unharmed and developed to yield its recorded information. "Things have changed", Sgt. Haskett recounted, "electron tubes by the hundreds, oscilloscopes, data reduction machines, receivers, transmitters, all this and more are now involved in the more modern methods of telemetry. In the PW-FM system, as used at WSPG, the desired information is converted to electrical voltages which cause a transmitter to send a series of coded pulses, or radio waves, to the ground station. On the ground these coded pulses are deciphered by electronic instruments, and the information appears in series of vertical lines whose lengths indicate the magnitude of the original voltages. The lines are presented on an oscilloscope, which might be considered the fore runner of television. As the series of lines appear on the screen, they are photographed and the film is available for detailed study and analysis."

This analysis, formerly done by hand, is now accomplished by machine, officially named the Hermograph, but called "Herman" by its operators. It electrically measures the desired line lengths and plots the results on graphs suitable for use by the engineers, Haskett claimed in praise of the machine.

The present methods of telemetry, as contrasted with the older methods, have been so dependable that on many projects the telemetry has never been known to fail, and the desired records are always obtained. Sgt. Haskett stated that although the data passes through many operations from the many operations from the time it is generated until it

appears in final plotted form, the over-all accuracy of this system is within two percent, which means that if the order of signal were 10 volts, the error would be less than 9.2 of a volt.

Though Sgt. Haskett was the spokesman in relating information on telemetry, Sgt Angerman was quick to correct him when he felt a statement was a little at fault. Angerman's home is in Bethlehem, Pa. He is a Sigma Theta Pi and a member of the Science Club at Moravian College. Sgt. Haskett's home is in Norman, Oklahoma. His duties at WSPG are wide. He correlates the time between the control station and block house, announces the X time, or time remaining until firing time, over the Project Command network during shoots sponsored by his project. "No one knows it's just a sergeant speaking, so I have no back talk," he said with a smile.

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MEMBERSHIP BUTTONS. We are happy to announce that we again have our very distinctive membership buttons. Due to greatly increased prices we will no longer have the 14K gold pins, but will have gold filled emblems which appear to us to be satisfactory in every respect. They will cost \$3.00 each and we urge that if you are planning to attend the Science Fiction Convention in Chicago in September that you order now. Wearing the Society button will immediately identify you to other members of the United States Rocket Society, Inc., who may be present.

Another World!

So remote does the subject of Astronomy seem to the average person that seldom, if ever, does he think of the Planet Venus as a piece of—real estate! However that is just what a planet is! There in the heavens, at an average distance of 67 million miles from the Sun and sometimes only 26 million miles from the Earth, swings another World! With a diameter of 7,575 miles this cloud covered twin of Terra inexorably makes its way, even as we, about our mighty Sun. Closer to the great luminary, a year on Venus is only 225 days; the length of the day has never been really determined, due to the cloudy surface which makes markings indistinguishable.

As to what conditions exist on this great planet we do not know. Contrary to the opinion of the man-in-the-street, Astronomy not only knows very little about the Planets, our companions in the depths of space, but knows very little about the consistency of earth's upper atmosphere and even less about conditions in space itself. As to the spectroscope, so little can be determined accurately that reflected light from the Moon is used as a guide to interpret analysis of self luminous bodies. On Venus, points of light, which may or may not be mountain tops are alleged to have been seen, beyond this, and glimpses of supposed surface markings, nothing can be seen. Not only does the perpetual blanket of clouds make good "seeing" impossible, but when nearest to us Venus is between us and the Sun. From an observatory on the Moon many mysteries of Venus might be cleared up, as it is, the mighty atmospheres of two planets are between the eyes of men and the mysterious surface of Venus. Marking time until our rocket takes us to the Moon and from thence to Venus itself, we can make a few broad deductions concerning what will be found there.

It seems logical to assume that the force of gravity being 85% of that of the Earth that Venus is not pitted by Vulcanism like the Moon, nor with a dense cloud blanket, denuded of atmosphere as is, apparently, Mars. Therefore a surface can be assumed of such a nature as to support human constructions, whether land or liquid is the base. As to atmosphere, Venus definitely has one, perhaps denser than ours. If plant life exists on Venus, as it appears to on Mars, and does on the Earth, it should be more luxuriant and oxygen is a logical by-product. And vegetable life is, as far as we know, a requisite for "higher" forms.

As man can bring to any solid or liquid spot the means to protect and promulgate human life we can safely say that Venus will be colonized by Earthmen, in, we hope, the immediate future.

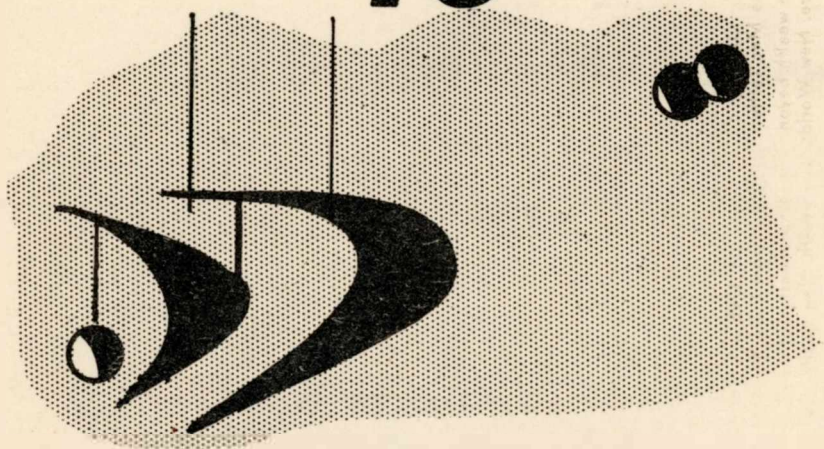
As to just what conditions men will have to face, or what forces of plant or animal or other life they will have to meld with or subjugate we of course do not have an inkling. But we do know that when man lands on the Planet Venus a new chapter will be written in Solar System Archaeology and possibly Anthropology. All Venus will be affected by Man. And all men by the environment of Venus. A million years from that landing will still reflect the first foot steps of MAN! For what ever he touches he bends to his will.

For the immediate future there will be pioneering; pioneering on a cosmic scale. The life times of men will not be ample to tell the story. For example—shortly after the Revolutionary War General Cleveland claimed what is now Ohio for Connecticut and founded modern Cleveland. (Dropping the "a") He prophesied that, "—babes now born will see Cleveland surpass the population of Old Wyndham." One hundred and fifty years later,—Cleveland, pop. 1,000,000; Old Wyndham, 14,000. In 1795 a tract of downtown Cleveland comprising 20 acres sold for \$1.76, today it is worth \$25,000,000. Why? Because Men settled there, and from there developed the Ohio territory.

In the days to come wealth beyond the comprehension of men now living lies on planets that have yet to feel the tread of Man. Men make wealth and wealth supports culture. New Worlds, new wealth. New wealth, new culture. New culture, new achievement.

—on to VENUS!

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