

Starting Next Issue: THIRTY-TWO ADDITIONAL PAGES!

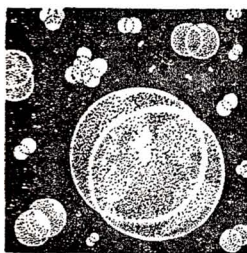
STARTLING STORIES

Vol. 18, No. 1

A THRILLING PUBLICATION

September, 1948

A Complete Novel



What Mad Universe

By FREDRIC BROWN

When the first moon rocket fell back to earth with a flash, Keith Winton found himself catapulted into a world that couldn't be—a fabulous globe where men in jalopies were space masters! 11

A Hall of Fame Novelist

TETRAHEDRA OF SPACE..... P. Schuyler Miller 82
Only a quartet of Earthmen stood between the Mercurian invaders and planetary conquest! A classic reprinted by popular demand

Short Stories

RAT RACE..... Dorothy and John de Courcy 72
The Rat-men's empire spread ever outward until it engulfed the world

SHENADUN..... John D. MacDonald 102
Explorer Mitchell battles to conquer the challenge of the mountain

SANATORIS SHORT-CUT..... Jack Vance 113
Mathematics is Magnus Ridolph's weapon against a pirate of space

Special Features

THE ETHER VIBRATES..... The Editor 6
A department for readers, including announcements and letters

FIRST TARGET IN SPACE..... R. L. Farnsworth 98
The president of the United States Rocket Society discusses the Moon

SCIENCE FICTION FAN PUBLICATIONS..... A Review 138
Cover Painting by Earle Bergey—Illustrating "What Mad Universe"

STARTLING STORIES. Published every other month by Better Publications, Inc., N. L. Pines, President, at 4600 Diversey Ave., Chicago 39, Ill. Editorial and executive offices, 10 East 40th St., New York 16, N. Y. Entered as second-class matter November 22, 1946, at the post office at Chicago, Illinois, under the act of March 3, 1879. Copyright, 1948, by Better Publications, Inc. Subscription (12 issues), \$2.40; single copies, \$.20; foreign and Canadian postage extra. In correspondence with this magazine please include your postal zone number, if any. Manuscripts will not be returned unless accompanied by self-addressed, stamped envelopes and are submitted at the author's risk. Names of all characters used in stories and semi-fiction articles are fictitious. If the name of any living person or existing institution is used, it is a coincidence.

PRINTED IN THE U. S. A.



TARGET NO. 1

FIRST TARGET IN SPACE

By R. L. Farnsworth

SINCE the earliest days of the Industrial Revolution there has been the realization, in both the minds of scientists and of an intensely interested public, that Man would soon possess the tools to lift him from the surface of the Earth toward the myriad worlds that accompany him so faithfully through the abyss of space. While the tools to implement the great dream have seemed slow in coming, they have, in fact, developed with a seemingly single-minded cosmic purpose, since each source of power, newly found, has been greater than the last.

The first to realize the strength with which Man was girding himself was Jules Verne who, with his impractical "Moon-Cannon," was the first to use existing mechanical means to conquer the depths between Earth and Moon. Ironically enough, Verne utilized the proper method, the rocket, as an auxiliary measure to check the fall of his projectile back upon the Earth.

The Problem of Finance

Today we have it in our power to reach the surface of our satellite. The great development of the liquid fuel rocket in World War II gives us the tool. And, as a sure thing, atomic energy is now in our possession.

The only problem remaining is the one of finance. If you doubt this, recall what was said before the War in regard to atomic

power. It was said that it would not be realized for easily a hundred years. Yet two billion dollars was sufficient not only to bring it to fruition, but soon enough to be used as a military weapon.

The same situation exists with the rocket. Given the funds, a rocket today could reach the Moon.

Why Reach for the Moon?

Curiously enough, now that we have it in our power to reach the Moon, there is a great hue and cry as to why we should want to do so! Well, why should we? What do we know about the Moon? What makes our nearest large neighbor in space Rocket Target Number One?

Physically, we think that we know the following facts about our target. The Moon has a diameter of 2,160 miles and revolves about the Earth once every twenty-seven days and eight hours, at a mean distance of 239,000 miles. Its total area is approximately fifteen million square miles, which, since it seems to have no bodies of water—at least on the visible side—gives it a land area equal to a little less than the combined land area of North and South America.

A Forbidding Picture

Most popular books on astronomy tell us that the Moon has neither air nor water and that the thousands upon thousands of crater

"All Aboard for a Trip to the Moon"

formations which cover its surface are due to meteoric action upon a world without weather or subsequent erosion. Temperatures given are estimated to vary between 120°C in the daytime to 80°C during the long night.

However, this has not been definitely determined. Generally there is added a note to the effect that nothing ever happens on the Moon, and that it is a dead world. Naturally, with this forbidding picture, the public in general has been unable to become greatly enthused over the rocket-to-the-Moon. How-

ever there are other and more interesting considerations.

They All Had an Idea

Historically, our satellite, larger in proportion to Earth than any other planet's moon—the Moon is only slightly smaller than the planet Mercury—has evoked great and sustained interest through the ages.

Four thousand years ago the ancient Hindus thought of the Moon as a vessel full of sacred wine, a kind of miraculous pitcher

*The president
of the
United States
Rocket Society
lists points
of interest
you'll want
to see on
a trip you
may be taking
sooner
than you think!*



R. L. FARNSWORTH

that waned as the wine was drunk, but always filled itself again! In the name of the Moon they drank on all state occasions.

Later, according to Herodotus, the tireless Greek historian, the Persians, lords of the then lush Middle East, deliberated on weighty affairs while drinking in the name of the Moon! And reconsidered, when sober! That was not such a bad custom.

"But," continues the curious Greek, "sometimes they deliberate when sober and decide when drunk!"

Strangely enough, all through the ancient times of Man, the Moon, glorious in the clear skies of earlier cultures, was worshiped in particularly romantic fashion. Such provocative goddesses of antiquity as Diana, Artemis, Ishtar and Selene all testify to the feminine, inconsistent nature of the Moon. Inconsistent because of the impossible struggle of all earlier mathematicians to reconcile the Lunar motions with those of the Sun for calendar purposes! Also, always feminine, due to the inexplicable coincidence of the natural functions of women agreeing with the twenty-eight day phases of the Moon.

Since the very dawn of vision, Man has yearned to catch a glimpse of the unseen side of the Moon. While six-tenths of the Moon can be seen, due to irregularities in its motion, selenography—the science of Lunar map making—can never show us the other four-tenths of her shattered landscape. Forever veiled to us, from Earth a constant challenge, this unseen side of the Moon has caused uncounted minds, both popular and scientific, to speculate.

A One-Way Trip!

Today we know but one thing about the hidden face of our astral companion, and that is that it is the perfect base from which to manufacture atomic rockets with which to blast helpless humanity on Earth!

When we think of a rocket-to-the-Moon we are accustomed to think of a one-way trip, with unutterably harsh conditions upon arrival. The facts are that not one, but several rockets would be sent to the Moon at the same time, perhaps only one containing passengers. The rest, radio-controlled, would contain supplies, laboratories, and serve as additional buildings once they had landed.

To return to Earth would be a much simpler matter than is generally supposed. The present velocity of the captured German V-2

rocket, which is one and a half miles per second, is exactly the escape velocity necessary to take a rocket from the Moon to the Earth. It is not too much to suppose that the V-2 has been greatly improved upon during its tenure in the United States, nor to suggest that return rockets could be taken along, piece-meal if necessary, to provide for a return to Earth.

Living on the Moon in air-tight structures would certainly be easier of accomplishment than sustaining life in a submarine or a stratosphere plane. Both are greatly restricted, due to the necessity of movement.

Once on the Moon, the possibilities for scientific research are immense. As an astronomical observatory, as a physics, biological, and photographic laboratory, as a master weather station from which to note and relay advance weather information to Earth, for the study of cosmic radiations and the structure of the Sun and Stars. For all of these purposes the cost of exploration would be paid a million times over.

Is It a "Dead" World?

Solar energy could be utilized for power, and should the "craters" be found to be of volcanic origin, what heavy metals exist on the Moon should be well distributed upon the surface. All science on Earth is doomed to work forever beneath a layer of atmosphere, about which little is known, and through which all observations, astronomic and spectroscopic, must be taken—with what aberrations we do not know.

Now, about this "dead" world. In regard to the craters, J. E. Spurr, in his "Geology Applied to Selenology" gives a masterly exposition of the volcanic origin of the craters as opposed to the prevailing meteoric theory. Since not within the memory of historical astronomy has a meteor ever been seen to make a crater, and since there have been changes observed on the Moon, the theory of vulcanism lends credence to the thought that the Moon is not yet entirely "dead." Before 1866 the crater Linné was used as a reference point, and was a definitely dark object. Today it is light colored and of little use for a base point.

Up to April, 1871, there were over 1,600 recorded observations of fluctuations of lights in the crater Plato and thirty-seven graphs of the appearance. All such records are now on file in the Library of the Royal

Astronomical Society.

The American astronomer, Wm. Pickering, reported moving gray spots in Eratosthenes. Lights have been observed in the following craters—Bessel, Copernicus, Aristarchus, Linné, Plato, Carlini, Eudoxus and Proclus. A bright spot was seen west of Picard on March 23 and on March 26, 1909. On Dec. 19, 1919 a black mark was observed near Littrow, and on Jan. 31, 1915, white spots were seen in Littrow. On Sept. 13, 1889, a black spot with a white border was seen in Plinius and a veritable light-house was observed in Aristarchus on May 7, 1867, and again on Nov. 7, 1891.

Dark triangular patches have been seen moving on the Moon and for a hundred and twenty years flashes of light have been seen on Mare Crisium. On May 13, 1870, there was an "extraordinary" display of lights on Plato and a luminous triangle was seen on the floor of Plato on Nov. 23, 1887. And on Aug. 29, 1917 a luminous object was seen moving within Plato. Incidentally, Plato is sixty miles in diameter, and has walls five thousand feet high.

How About Air?

As to atmosphere on this "dead" world. Contrary to opinion there have been many instances of stars that have been reported out of place when occulted by the Moon. Yet astronomy will tell you that the Moon has no air because stars are not refracted when the Moon passes in front of them. On Oct. 10, 1916 a reddish shadow was seen over Plato, and some of the craters have evinced a change of color in the crater floor with the coming of the Lunar day. On Feb. 28, 1885, a dull deep red color appeared in Hercules and two days later a reddish smoke or mist was seen in Cassini.

While a large telescope brings us to within five hundred miles of the Moon, objects smaller than the Capitol at Washington would not show up well, with the exception of lights. While the surface of the Moon,

which we see, is better known and mapped than the Earth, the topography—mountains, plains, depressions, cliffs and clefts—all are totally unlike any on Earth.

There Is Light—There May Be Life

The section of the Moon near the Hyginus chasm shows formations so far from anything on Earth that we can not even guess what they are or what caused them. There is a great "valley," ninety miles long and six miles wide, connecting Mare Imbrium with Mare Frigoris. And there is the great "wall" near Thebit.

But there have been stranger observations than those of the textbooks. A formation shaped like a sword lies near Birt. A geometric "X" has been seen in Eratosthenes. A peculiar "sign" in Plinius. Angular lines in Gassendi. Reticulations in the dark floor of Plato. In Dec. 1915, a black wall to the ramparts of Aristillus was seen as a new formation. On May 4, 1922, three long mounds were seen in Archimedes, which have since disappeared.

If you are wondering why more observations have not been made of changes on the Moon you can be referred to a recent query raised among astronomers themselves. It was, "What has happened to selenography?"

The fact is that the Moon is seldom observed by the great observatories. Being unable to solve the problems of the Moon, comparatively close at hand, they have turned their attention to resolving the riddles of the Universe—at much greater distances.

There have been too many authenticated observations of changes taking place on the Moon to label it a dead world. Nowhere in the cosmos is there death, if by death is meant the cessation of all activity. The story of the Universe is the story of constant movement. On the Moon there is movement, there is light, there may be, of a kind—LIFE.

The Moon remains Rocket Target Number One!