

BULLETIN

THE AMERICAN INTERPLANETARY SOCIETY

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INTRODUCTORY

Among the principal aims of the American Interplanetary Society are the promotion of interest in interplanetary exploration and travel, and the mutual enlightenment of its members concerning the problems involved. To these purposes the monthly bulletins, of which this is the first, will be devoted.

The Society, despite its youth, has already begun to tackle seriously the peculiar problems in its field. Since the creation of public interest is of prime importance, the Society has sought to awaken interest in itself as well as the ideas for which it stands. Meanwhile, it has also begun the scientific consideration of the technical side of its program.

These varied activities will be reported here in full. In addition the bulletin will contain comprehensive summaries of developments relating to its subject everywhere in the world. The foreign news is expected to be of particular interest and value, and every effort will be made to make it a complete record of the research and experiments of foreign scientists in this field. All suggestions for improving the bulletin will be gratefully received.

NEWS OF THE SOCIETY

One of the earliest books on the subject of interplanetary travel, written by John Wilkins, Bishop of Chester, in 1640, has become the property of the Society through the generosity of one of its members, Hugo Gernsback. Captain Sir Hubert Wilkins, noted explorer and a descendant of the author, who is an honorary member of the Society, made the presentation in a ceremony at the American Museum of Natural History on April 30, David Lasser, president, receiving the small leather bound volume for the Society. The book, entitled, "The Discovery of a New World, or a Discourse Tending to Prove That There May Be Another Habitable World in the Moon, and Concerning the Possibility of a Passage Thither," becomes a valuable part of the Society's library.

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A survey of the entire field of information relating to interplanetary travel has been begun by the Society, with C. P. Mason in charge of the investigation. It is the purpose of the survey to bring together in a comprehensive collection all the writings on that and related subjects, and to outline the problem with all its attendant difficulties, together with the proposals that have been made to solve them. The result should provide a complete reference library on the subject and a guide for scientists and others who may be interested.

The Universal Background of Interplanetary Travel

By Fletcher Pratt.

(Summary of a Paper read before the Society on May 2, 1930.)

Naturally the history of interplanetary travel can cover only the history of the idea of an interplanetary flight, since no flight has been yet attempted. Serious consideration of the idea did not begin until man knew of his position in the universe, and of the existence of other planets and their motions.

Many serious writers, and those using fiction as a medium, have concerned themselves with the idea. The early writers on the subject, those between the second and nineteenth centuries, had many ingenious means for getting their vehicles off the earth and to some other known or hypothetical worlds. Every one of these devices is based on some hypothetical assumption. Thus Lucian writing in the second century A.D.; Bishop Wilkins, and Cyrano de Bergerac in the seventeenth century; Voltaire in the eighteenth assume that the atmosphere extends indefinitely throughout space. Fiction writers like Verne ignore the nature of explosives; H. G. Wells assumes a substance that reflects gravity and whose action can nevertheless be suspended; J. A. Mitchell, Edward E. Smith, and others assume the release of atomic energy in so convenient a form that it can be used for fuel; various modern writers project "beams of force" whose nature is conveniently unexplained.

Each of these authors neglects some essential problem; generally the difficulty of preventing the rapid radiation of whatever heat the interplanetary car contains. Lord Dunsany is as plausible as any when he has a magician drop some powder on a fire and dismiss his hero into space by incantations.

But recently there has been a change among the ideas of interplanetary fiction writers. Goddard has demonstrated the high efficiency of rockets in a vacuum; Oberth and Valier have shown their practicability for the propulsion of vehicles, and J. R. Randolph claims to have designed a rocket perfectly capable of reaching the moon, if the funds to build it were only forthcoming, which they would be if some practical result of such a trip were demonstrable.

We may say then, that the idea of interplanetary travel has progressed so far that there are three major problems remaining; the demonstration of the utility of the idea with which is bound up the questions of financing the trip, the obtaining of a fuel with sufficient power per pound of its weight, and the overcoming of the effects of the necessary acceleration on the human body. And if the first problems are solved, it is hoped that means for the third will be speedily accomplished.

CURRENT NEWS AND VIEWS

Those who believe in interplanetary travel as a practical possibility, like to speculate on the date when our increasing knowledge and power will bring about the first expedition, which undoubtedly will have the moon as its objective. In this connection there is great interest in the prediction which Dr. John Q. Stewart, of Princeton University, made in a recent address before the Brooklyn Institute of Arts and Sciences. After declaring that the speed of the rocket-propelled, space-navigating cruiser

which attempts to reach the moon must be of the order of 25,000 miles per hour, Dr. Stewart proceeded to analyze the rate at which man is progressing in attaining greater speeds. This led to the conclusion that the necessary speed for the attempt will be possible by the year 2050.

Dr. Stewart envisions the trip made in a large metal sphere 110 feet in diameter, manned by a crew of sixty men and with a dozen scientists as passengers. The ship would be propelled on the rocket principle by a "dozen or more cannon" protruding slightly from the hull at various points. It would have a total initial mass of 70,000 tons. A fuel much more efficient than any now available must be developed for this purpose, and Dr. Stewart says that this may be found in one of several forms. One is ionized hydrogen, which can be obtained now in small quantities in the laboratory and which yields 100 times as much energy as the same amount of coal and oxygen.

NEWS FROM ABROAD

Max Valier, who was killed in Berlin May 17 by the explosion of a rocket motor, was a pioneer in the application of the rocket principle to the propulsion of vehicles. His first rocket automobile, constructed in 1928 in collaboration with Fritz von Opel, the automobile manufacture, made 120 miles an hour in tests but was later destroyed. He then began tests of a rocket airplane with a transatlantic flight in view, but disagreements with Herr von Opel caused them to part company. Herr Valier continued his experiments on the plane, which he predicted would be able to fly from Berlin to New York in two hours.

Working with Dr. Paul Heylandt, Herr Valier recently constructed an automobile which was believed to embody the practical solution of rocket propulsion. Exactly a month before his death he exhibited this car at Tempelhof Airfield in tests which were attended with complete success. The machine, at all times under the control of the operator, covered two miles and attained a speed of 50 miles an hour. The accident which caused his death came when Herr Valier was standing behind a specially designed carburetor for the purpose of testing the pressure capacity of the gas container. There was an explosion and he was enveloped in flames, while pieces of the steel container struck him in the chest and neck.

Liquid fuel combined with pure liquid hydrogen furnish the power for the "hip flask" motor developed by Dr. Heylandt and used in Herr Valier's rocket automobile. Although it weighs only seven pounds, the motor is said by its inventor to develop from 40 to 50 horsepower. The significance of this is made plain by comparison with the best modern airplane motors, which develop only about one horsepower per pound of weight. The liquid oxygen and gasoline are fed by separate pipes into the small motor, from which a flaming blast trails.

Dr. Heylandt's next step, he announced, will be to build such a rocket motor into an ordinary airplane. The plan is to have the plane take off in the ordinary manner and switch on the rocket motor after a sufficiently high altitude is reached. Later a plane will be constructed with only a rocket motor and an attempt will be made to hop across the English Channel.

Meantime, in another part of Europe, the first serious attempt to shoot a rocket to the Moon is being made by the noted Czech inventor, Ludvik Ocenasek. Although Ocenasek believes that human beings can be transported by rockets, his present experiments are not concerned with that problem. In an immediately practical sense his hope is to master the difficult problem of sending rockets from one part of the Earth's surface to another, and it is possible that his experiments will result first in the transportation of mail by rockets between Europe and America. The largest rockets he has experimented with so far were about 20 inches long and an inch or more in diameter. These, partly equipped with the same metal equipment which will be used in the final form, have already reached altitudes of slightly under 5,000 feet.

Ocenasek's rockets consist of two parts, one to penetrate through the earth's atmosphere and the other, which is the true rocket, to make the flight through the vacuum of space. In order to regulate the landing speed of the rocket, in cases of its use between distant points on the earth's surface, wireless transmission of power will be called into play. Special machinery will be placed in the interior which will be operated by wireless and will cause a small parachute to open.

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A trip to the Moon may be possible within 15 years, a gathering of French scientists was told recently by Robert Esnault-Pelterie, author of "Astronautique". Financial backing is the "sine qua non", of such a venture, the speaker said, since experiments costing perhaps \$2,000,000 would have to be made first. The first step, according to M. Esnault-Pelterie, would be to construct rockets which could be sent empty, but carrying registering instruments, to a height of 50,000 to 70,000 meters (about 31 to 43 miles). Afterward ascensions would be made with a crew aboard and the distance of the trips into space could be gradually increased. The French scientist and author based his assertion on experiments supplementing those of Hermann Oberth, German rocket expert, which showed that it will be possible with a rocket fed by a mixture of oxygen and hydrogen to obtain a speed of more than 4,000 yards a second. Whether or not financial backing is found immediately for an attempt to reach the Moon the rocket principle will be applied very soon to practical transportation on earth, M. Esnault Pelterie predicted, adding that the trip from Paris to New York will take about twenty-four minutes.

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Meetings of the New York members of the American Interplanetary Society are held on alternate Friday evenings in the American Museum of Natural History, 77th Street and Central Park West. The next meeting will be held on June 6. Persons interested in the aims of the Society are invited to write to the secretary, C. P. Mason, 502 West 22nd Street, New York City, for information about the various classes of membership, including active, associate and special, which are open to men and women who possess the necessary qualifications.