

'ASTRONAUTICS'

WOODFORD A. HEFLIN

Air University

A WORD THAT IS GAINING currency in the world is *astronautics*.

Almost three years ago, while editing this word for Air Force purposes, I found the evidence on its origin to be incomplete. I have worked on it further since that time, and have now come to regard the evidence as complete. The story of this evidence and of how it was assembled follows.

The evidence is in two parts. First, an isolated example of the word *astronaut* appears in *Across the Zodiac*, a science fiction book written by Percy Greg, an Englishman, and published in London in 1880. I am indebted to R. W. Burchfield, editor of the *OED* Supplement, for the citation, which he sent me in October, 1960. This 1880 example may be connected with the present use of the word *astronautics*, but the point will be discussed later.

The other evidence is that which bears upon a coinage in France in the year 1927. It begins with a paper written by the French pioneer aviator and scientist, Robert Esnault-Pelterie, entitled, in translation, 'The Exploration of the Very High Atmosphere by Rockets and the Possibility of Interplanetary Travel,' which was published in Paris in 1928.¹ The title page, however, carries the statement that the paper had been read to the general assembly of the Société Astronomique de France on June 8, 1927.

In this paper, Esnault-Pelterie discussed the technical problems of thrust, guidance, and control as these pertain to a machine that could be built for interplanetary travel; but he also concerned himself with the problem of stimulating research in these fields. One important matter, he said, was to obtain an appropriate name for the over-all endeavor. That, he said, had already been done, and I translate: 'Monsieur J. H. Rosny *ainé* has very happily invented the word "Astronautique" which I immediately adopted.'

Assuming that this passage was actually included in the paper read in June, 1927, the evidence of usage must therefore go back to June, 1927. But Esnault-Pelterie states that J. H. Rosny *ainé* was the person who really used the word first. He does not say when Rosny first coined the word, nor does he mention the circumstances.

When I first considered these questions back in May or June of 1958 I thought a step I could personally take, and one that perhaps ought to be taken, would be to search through some of Rosny's works themselves on the chance that the word would turn up there. I reasoned that Rosny had probably used

1. *Bulletin de la Société Astronomique de France*, Supplement, March, 1928.

the word recently (that is, not too long before Esnault-Pelterie had read his paper), although theoretically he could have used the word several years before. But the interest in interplanetary travel (as astronautics was usually called in those days) had been especially stimulated in 1919 when Robert Hutchings Goddard's treatise, *A Method of Reaching Extreme Altitudes*, appeared.² This could have been the *raison d'être* of Rosny's interest. So I concentrated on the period between 1919 and 1927.

Rosny was a prolific writer of romances. Born in 1856, his real name was Joseph Henri Honoré Boëx. He commenced his career at an early age, and his writings began appearing in print by 1886. He had a good reputation and was the friend of many leading scholars and scientists in France. Like Jules Verne and H. G. Wells, he was interested in stories on space travel, but his main interest was the romance. Between 1886 and 1919, about twenty of his romances were published, and in the years between 1919 and 1927, at least sixteen more. Using the titles in the latter period as guides, I borrowed several of Rosny's books from the Library of Congress. I particularly read *Les Navigateurs de l'infini*, published in 1925, and two volumes of memoirs. But I did not find the word *astronautique* in any of these. All the time I was doing this, I thought there ought to be an easier way of making the search. I was also aware that Rosny could have used the word in a private conversation only, or perhaps in an ephemeral writing. What I needed was expert guidance. I went to the file of doctoral theses and, as hoped for, there found listed a specialist on Rosny. Dr. Lorrie V. Fabbriante, Ph.D., Columbia, living in Forest Hills, New York, had written his dissertation on J. H. Rosny *atné*. In response to my inquiry, he made one suggestion, but after I had followed this out and had found nothing, I abruptly ended this approach. I closed it out by September, 1958.

By this time my interest in the search had quickened, and I determined on writing Robert Esnault-Pelterie. To my disappointment, I had a note from his widow, who said he had died two years before. Born in 1881, this great Frenchman not only had been among the first aviators in the world, but he had become an inventor and aeronautical engineer of distinction, and—of some interest in the history of astronautics—he had in 1912 read a paper before the Société Française de Physique, in which he discussed the reaction engine as the means of developing the required thrust for space travel; and again, in the years after 1919, he had taken the initiative in stimulating studies on propulsion systems for interplanetary travel. Had he been living, and had he answered my inquiry, he would, no doubt, have cleared up at once the points that concerned me.

At about this time, I was considering a trip to England and Paris in June,

2. Washington, D.C.

1960, on matters that were not connected with the word *astronautics*. However, I realized that I could take advantage of the trip to advance my inquiries. I therefore did not press the search further until I could converse with different persons in Europe.

My first conversation was with Mr. Burchfield. He already had collected in his Oxford office of the *OED* Supplement a number of examples of *astronaut*, *astronautical*, and *astronautics*. These went back to 1929, and, for the most part, they pointed to the fact that English usage followed the French. I was able to give him the earlier French example taken from the 1928 printed paper of Robert Esnault-Pelterie. Mr. Burchfield turned the accumulated materials over to Elizabeth Brommer, of London. She verified the points already obtained, added some new ones of her own, and put them together in an article published in *Notes and Queries*.³ The author came to these conclusions:

First, that Rosny had probably coined the word *astronautique* at the time that Esnault-Pelterie and his associates, some of whom were in the Société Astronomique de France, were organizing themselves into a committee to promote a drive within the Society for more intensive work aimed at achieving flight into space.

Second, that the coinage itself was, in all likelihood, not taken from a prior usage by Rosny.

The article by Brommer, of course, was not written until after I had departed Oxford. In the meantime, I went to Paris. I had the notion that I could possibly find someone personally acquainted with Rosny or Esnault-Pelterie who could recall the circumstances under which the word *astronautique* was coined. Rosny himself had died in 1940, and Esnault-Pelterie had died on December 6, 1957.

I made four good contacts. The first was the Société Française d'Astronautique. The second was M. Georges Duhamel, a member of the French Academy, and a person with an official interest in the French language. The third was M. Émile Moussat, a distinguished critic and commentator. And the fourth—of paramount importance—has been M. André Louis Hirsch, whom I did not meet personally but who, through the Société Française d'Astronautique, has written me and has clarified the entire problem. Monsieur Hirsch was an original member of the Esnault-Pelterie group who organized the first committee on astronautics.

The key pieces of new evidence supplied by Monsieur Hirsch are two letters, one written to M. Alain Sola, the Secretary of the Société Française d'Astronautique, the other written to me. I received a copy of the letter written to Monsieur Sola on October 17, 1960, and the letter to me came on October 27.

This is the story told by Monsieur Hirsch. On December 26, 1927, a number

3. 'Astronautics,' *Notes and Queries*, VII, No. 8, new series (1960), 312, 313, and 283.

of scientists and other distinguished persons came together at the home of André Hirsch's mother, at 47 Avenue d'Iena, Paris. They were invited dinner guests, and their purpose was to form a committee within the Société Astronomique de France that would encourage work in fields that would directly contribute to the achievement of travel in space. These guests included Jean Baptiste Perrin, a Nobel Prize winner in physics; Henri Chrétien, a builder of large telescopes and an inventor; General Gustave Ferrié, a pioneer in the military applications of radio telegraphy; Felix Esclangon, a noted astronomer; Charles Fabry, a noted physicist; Monsieur Fichot, the President of the Société Astronomique de France; André Louis Hirsch, a close friend and associate of Robert Esnault-Pelterie; and Esnault-Pelterie himself. Another invited guest was J. H. Rosny *ainé*, a famous author and one of the rare writers of science fiction at that time.

At the end of the dinner, the group adopted a plan for giving an annual prize to encourage astronomical research. This prize was to be named for André Louis Hirsch. Then the guests fell into a discussion of the name that should be given to the new science with which they were concerned. Robert Esnault-Pelterie proposed *sideration* as parallel with *aviation*, but this word did not appeal because of the connotations of the word *siderant*, which meant 'thunderstruck.' Then someone suggested *cosmonautique*, which also made no great appeal. At that point, J. H. Rosny uttered the word *astronautique*. This was the word they were waiting for. The assembly adopted it at once.

The testimony thus given by André Louis Hirsch confirms Esnault-Pelterie's statement that Rosny had coined the word *astronautique*; it also confirms the tentative conclusion by Elizabeth Brommer that the time of coinage was in, or around, 1927; it also confirms her suggestion that the coinage was for the particular purpose of promoting the efforts of Esnault-Pelterie and his friends to obtain the support and interest of the Société Astronomique de France. It was not, therefore, a word that had already been used in science fiction, but was a new word adopted by the savants of France to describe the principles, the art, and the skill of space travel.

One point in Hirsch's testimony, however, seemed to be at variance with the statement on the title page of Esnault-Pelterie's published work. Hirsch gives the date of the dinner as December 26, 1927. Yet according to its title page, Esnault-Pelterie's paper, although published in 1928, had been read to the Société Astronomique de France on June 8, 1927.

Since the apparent discrepancy was not explained in the first letter from Monsieur Hirsch, I dispatched a further inquiry. I was certain that the story told by Hirsch was a true one, because it was consistent with so many other facts that I knew independently. Nevertheless, I wanted to obtain direct corroboration for what I had already inferred. This was that Esnault-Pelterie

had reedited his manuscript between the time he read it on June 8, 1927, and the time he released it for printing in 1928, and that he took the opportunity to update its contents and to use the newly coined word *astronautique*. If this inference were a correct one, it would again indicate the exacting standards to which Esnault-Pelterie held himself. A published paper is permanent; the author's responsibility is to make it as sound as he possibly can. Esnault-Pelterie could hardly have done less.

While I was awaiting a reply from France, I reexamined the 1928 printed text of Esnault-Pelterie's article. He had used the word *astronautique* four times and the word *astronaute* one time. Although in each case the context was smooth, the passages involved could have been inserted almost at any time up through page proofs. One passage, that on page 64, was definitely an aside or digression, and three other passages were in a section called 'Conclusions.' The passage that shows *astronaute*, on page 91, occurred at a place where *voyageur* could easily have been used instead.

Corroboration for these points came in the second letter from Hirsch. He states that the work as published in March, 1928, was much longer than the original paper, which had taken only an hour and a half to read, that the original manuscript did not contain the mathematical formulas, and that the conclusions were all reviewed before printing.

Thus, we may now proceed to the following conclusions about the origin of the word:

1. J. H. Rosny was, in fact, the originator of the French word *astronautique* as used in the present context and tradition of science and technology.
2. This word spread from French to English and to other European languages. Evidence for this, so far as the English word *astronautics* is concerned, is provided in Elizabeth Brommer's article in *Notes and Queries*.
3. The word *astronautique* was not, from the standpoint of French scientists, a science fiction word, but a word that was created for their own special purpose.
4. The occasion when the word was first suggested for scientific use was the dinner given at the home of André Louis Hirsch's mother in Paris.
5. The date of this dinner was December 26, 1927.

One last point needs consideration—the previously mentioned passage in Greg's *Across the Zodiac*, in which the name *Astronaut* is given to a space ship; the passage was sent to Mr. Burchfield by Mr. R. L. Green. Greg's book, which bears the date of 1880, is an account of a trip to Mars. In it, the word *Astronaut* as a proper noun is frequently used. Its use shows that the word in itself is a somewhat natural formation, one that could have been coined by anyone.

As for a connection between this early example and the *astronautique* coined

by Rosny in 1927, it is anyone's guess. Jules Verne, Percy Greg, H. G. Wells, Rosny, and others were all fascinated by the possibilities of space travel. In 1925 Rosny had himself written a story about it, *Les Navigateurs de l'infini*. It is not impossible that he had read Greg's book. Without being especially aware of Greg's influence, he could have reached back into the recesses of his memory and brought forward the root elements of Greg's word for his own coinage. If he did so, perhaps it is curious that he did not himself use the word in his own *Les Navigateurs de l'infini* two years before.

Whether Rosny owed something to Greg or not, it is clear, I think, that the common usage today goes back only to Rosny. It was he, together with Esnault-Pelterie, André Louis Hirsch, Jean Baptiste Perrin, and others, who sent the word spinning into our world of today.