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RELEASED FOR.....

ATTACK ON THE THIRD DIMENSION*

by

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Second Symposium on Space Travel

It was, of course, for symbolic reasons that Columbus Day was chosen for the date of the First Symposium on Space Travel held here at the Hayden Planetarium last year. And many of you who are here today, (again, of course, on Columbus Day,) may remember some of the introductory remarks I made then. I said that Columbus, when he set out on his trip to the West, had the wrong conception about the size of the earth. That he landed on the wrong continent. That he did not know the distance he had to sail nor how long it would take to sail this distance. That he had no idea about the nature of the continent where he finally made his landfall.

Then I compared his situation with that in which the proponents of space travel find themselves now, on the 460th anniversary of that landfall. We are now thinking of reaching and exploring the moon and as compared to Columbus we simply know "all about it" -- I wish to emphasize, however, that I put quotation marks around this "all about it." When we calculate a spaceship flighttrack to the moon we not only know that it will end in the place where the moon will be when the presumed spaceship reaches it and that it will not lead us elsewhere. We also know, once such a flighttrack has been calculated, with great precision where the spaceship would be after, say, ten hours of elapsed time. We know how fast it would move at that instant and we can devise ways and means of checking whether the actual flighttrack lives up to calculation or not. Of course we know the distance and size of our goal and even though nobody has been there yet, our astronomers -- for example, our Dr. Whipple here in the speakers' corner -- have very definite ideas about the nature of the

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moon and the conditions we would encounter on its surface. Moreover, these ideas are very likely to be correct and are apt to find mostly verification rather than revision when we actually get there.

But what I said last year is still true. In many respects we are immeasurably better equipped for a trip into space than Columbus was for his trip across the Atlantic. Except for that one point that he had a ship which could make the trip and we do not.

The difference between a trip into space and all other trips which man ever made is that all the earlier trips were essentially two-dimensional while a trip into space would be essentially along the third dimension. Even airplanes are, for practical purposes, tied to the two dimensions of the flat map, for a flight altitude of four or even eight miles counts little when compared to the 7,900-mile diameter of our globe. The older trips were West and South or a combination of the two, when it comes to space travel the paramount dimension is the length of the radius vector. Where earlier forms of travel had the firm support of the ground, of the seas or of the airflow around wings, the spaceship is supported, in a manner of speaking, by its cut-off velocity and its inertia, and the helping or opposing forces are not winds or currents but gravitational fields.

But I think it can also be said that we know more right now what is required of a spaceship, even though none has been built, than the shipbuilders of Columbus' day knew what makes a ship seaworthy. It is not my intention to take up time with technicalities - - that is the job of the speakers -- nor do I need to elaborate on the historical fact that five centuries ago there were also people who insisted that it couldn't be done and that it was dangerous besides. I just want to point out one more parallel.

I said that Columbus had ships that could make the trip. I have to add that these ships were then a recent development. The ships of Roman times, a thousand years before Columbus, had to hug the shores just as closely as airplanes stay near the ground nowadays. It is possible that a Phoenician ship was occasionally blown across the Atlantic passively on a one-way trip. But a ship which could make the trip at will, and in both directions, did not exist much earlier, - - in short Columbus specifically and people generally began crossing the Ocean just as soon as they had ships for doing so. In that respect the proponents of space travel of our time and the seafaring men of

the early fifteenth century find themselves in rather similar conditions. The will to go out exists, and the machine for doing so is in the state of being shaped.

Nobody, to my knowledge, ever said that it would be easy. But more and more people, after having studied the problem, say that it can be done.

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Willy Ley - Biography

Founding member of the German Society for Space Travel (V.f.R.)
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Research engineer, Washington Institute of Technology, 1945-47

Author of "Rockets, Missiles and Space Travel," and, with Chesley Bonestoll, "Conquest of Space."