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space exploration and the values of man

By Donald N. Michael



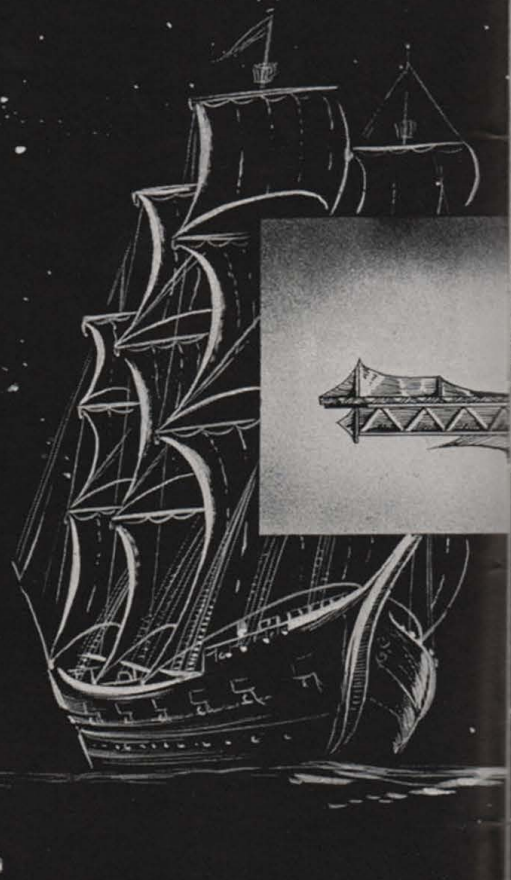
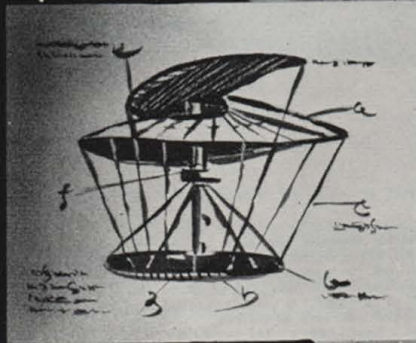
It has become commonplace these days for people who a few months ago would never have considered reading Space fiction to look into the future—and the near future at that—and pronounce that the survival of nations in war and the character of nations in peace will derive henceforth chiefly from changes introduced by the exploration of Space.

Obviously the potential for change is there, but realizing it depends on many profound and complex qualifications. When we talk about the "brave new world" which the exploration of Space will offer mankind, we must clearly realize that whether or not mankind accepts that offer depends on the motives, perceptions, aspirations and values of men and the social forms with which mankind makes his world. What I hope to suggest is that the impact of society on man's exploration of Space will be at least as great as the impact of that exploration on society. And, since portions of this article may seem less than completely optimistic, let me add that I am one who has read Space fiction all his life with that mixture of both romantic and pragmatic attitudes which tended to characterize most of us who took Space travel seriously before October 4, 1957.

Each development or potentiality deriving from the Space Age will be understood, misunderstood or ignored to the degree it meshes with the values and clear sight of the people concerned with it. That man is a conservative

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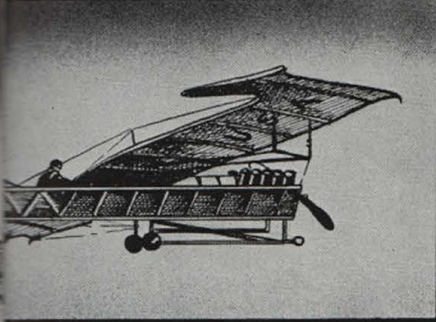
creature when it comes to changing his personal world view is a common experience verified by many laboratory studies. Moreover, most people attend carefully only to experiences which are immediately significant in terms of their everyday life. People react to new experiences in terms of their learned and tested mode of responding to the world. They perceive in terms of their pre-existing values and beliefs. They try to mold new experiences into old contexts. If they do not fit that standard context, they are likely to ignore them altogether. Or, if they can somehow alter these new experiences to fit their standard viewpoint, the new experience may very well lose its unique implications and power. This does not mean that man does not change his values in the face of new experience nor that he cannot be taught to change them at a rate and in a direction more likely to benefit him. But it does mean that the conservative and selective processes as such will persist. There



is every reason to believe that man will look at the new horizon of Space through old eyes—when he is not staring at some totally different horizon altogether.

With these important human tendencies in mind, let us look first at the period from now until the time when man has the technological capacity to colonize Space on a large scale. What can we say about the impact of Space on man's horizons—his values and aspirations, his way of life during this precolonization-capability period? In general, we must not expect much basic change fast in most places—simply because the unique and significant aspects of Space exploration are not close enough in conceptual content or practical side to that which is important to everyday living for most people. This might sound like an astonishing, not to say ridiculous, statement in view of the amount of attention the satellites and the whole future of Space have received in the press, radio, and television. But the

fact of the matter is that for most people the majority of news at best is simply news. It is novel; it is timefilling; it may be exciting, mysterious, threatening—but it seldom goes much deeper than that. At least it seldom goes deeper than a vague incorporation into some value system, unchecked for completeness, logical consistency or application to other problems. That is, when there is any response at all—and by no means is there always a response—one finds that the concepts are limited as follows: the Russian satellite is bigger; one goes to the Moon by rocket; Space weapons would be bad; we have got to beat the Russians into Space, etc. On the other hand, reality demands: what has size really to do with a satellite, or why take a rocket to get to the Moon, or what would a Space weapon do that an Earth weapon would not, and so on. Usually from the public one gets no answer to these; or the answer is in terms which would apply equally well to a bigger



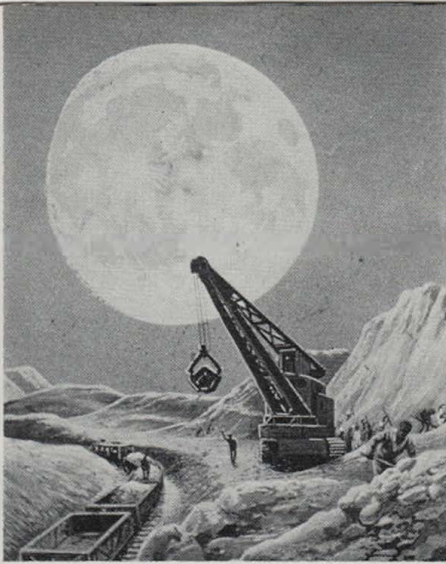
Russian milk wagon, or a bigger explosion anywhere.

There is a deeper difficulty here than simply this ignorance and disinterest. To appeal to people and get their support, it must be done in terms which are meaningful and important to them. Hence, man-in-Space must be placed in terms of today's important perspective and values. And, this situation is further confused by the conflicting interests of various groups that find the opportunities for realizing their own interests increased by the leverage provided by threat-based and hope-based appeals in terms of man-in-Space. Thus, in a very real sense, the present views of man-in-Space are serving in some areas to reinforce rather than to change pre-existing values; e.g., a popular view of international relations as being no more important than a football score, a simple extension of warfare into a new geographic area, an admirable extension of technological knowhow (with the "how," as usual, unknown and uninteresting to the admirer), an appreciation of science as a good investment for a future material payoff (with science being a novel kind of stock market.)

The eventual contributions of man-in-Space in changing the values and attitudes of society

In this medieval conception of Space travel, the voyager has reached the vault of the firmament and is investigating the mechanics of the heavens beyond.





This very old painting, together with the others shown here, were done by the French astronomer, Lucien Roudaux, for an article on the tidal theory of the end of the world. Here the Moon is seen coming closer to the Earth and gaining a larger angular diameter. (Photo courtesy of Armand Spitz)

As the Moon approaches even closer it raises tides so high that virtually everything in the civilized world is engulfed except a few far inland cities. This would mean the destruction of a vast amount of property and possibly lives, if Earthman could not temporarily move to another planet. (Photo courtesy of Armand Spitz)



When the Moon comes within Roche's limit it will begin to break up as shown here. (Photo courtesy of Armand Spitz)

After the Moon has broken up, the Earth would have acquired a ring probably very much like that of Saturn. (Photo courtesy of Armand Spitz)

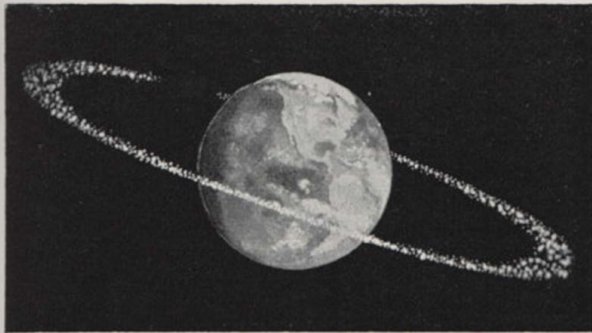
will occur through processes not unlike those which are leading to a growing popular understanding of psychiatry and the new physics. That is, the impact will be selective both in terms of the specific information introduced and retained by particular groups and in terms of the particular distortions and folklore which develop in others. And this will come about chiefly as a result of face-to-face contacts and the resulting by-products of such contacts.

The scientist associated with Space projects, being rare and being representative of new ideas *per se*, will be in demand socially in avant garde intellectual groups and for adult education lectures. Thereby the more philosophical—and less precise—aspects of astronomy, Space technology and Space medicine will become the new speculation, partly replacing, partly merging with the traditional subjects of terrestrial politics, psychoanalysis, and the prevailing philosophies. Here, the greatest impact will be from the gradual absorption of the ideas of the new cosmologies. And much in the manner that Freudian ideas filtered and are filtering from these groups to

the rest of the population through schools, magazines, service agencies, etc., we can expect, over a period of time, that certain ideas and values about man-in-Space will become crude and popular commonplaces at some levels and subtle stimulants at other levels. Only gradually can there come to be new understanding and thereby new behavior and attitudes—much as the popular belief that psychoanalysis and sex are practically synonymous is giving way to an awareness in some quarters of the facts of nonsexual character neurosis and thereby to changes in values about child raising, mental health, etc. Certainly, we cannot expect a sudden and complete enlightenment in all sectors of our society and societies around the rest of the world. It has never happened with any important ideas.

However, there is a special group which may play a useful role in spreading the new values growing from the exploration of Space, and this is the children who play at Space-man today. Whether or not they take this interest with them beyond childhood remains to be seen. However, the unique fact in the

present situation is that never before have children rehearsed a role that really will not exist until they are adults. To be sure all of them will not fulfill this childhood role, but the fact that the reality lies ahead rather than in the past (as with cowboys and Indians) may stimulate them to retain a sensitivity for the various meanings man-in-Space can have for our future. Also, children have become one of the most convenient authoritative sources for parents and teachers on Sputnik and related matters these last months. The serious adult



attention they have received may be heady stuff—sufficiently rewarding to generate a lasting motivation among some to remain among the informed over the years to come.

When, however, we come to the era of interplanetary colonization, the situation will have a very real potential for dramatic change simply because then the opportunity to participate directly in the experiences of Space travel, or at least by second-hand experience through the words and actions of persons who do, will make Space a significant part of everyday life. Hence, it must have its impacts on the attitudes and values that grow out of and channel everyday perceptions. But, even here, if we examine this circumstance more closely, it appears that the context in which Space colonization may take place will probably itself determine the values men hold toward Space much more than Space will determine the values they hold toward life on Earth. Let us look at some factors contributing to this context.

In the first place, the colonization of Space on the scale we are implying requires a mode of Earth-to-Space propulsion which does not now exist. That is, it must be cheap enough

to make it worthwhile transshipping thousands of people and the necessities for the existence. Perhaps thermonuclear power, perhaps anti-gravity will do, but certainly not the present chemical propellants. The point is that such packaged power has tremendous political and social implications for utilization on *Earth*, too. Such a powerful fuel might well make this planet a Heaven on Earth as far as power requirements for such a circumstance go. If so, why submit to the dangerous and risky life of extraterrestrial pioneering? What are the rewards? Consider the picture of pioneers we usually depend upon to support our predictions about future pioneers: they were fleeing poverty, injustice, or ways of life they disliked or were willing to take large risks. But can we imagine that a colony on the Moon will be set up by similar types of refugees, given the overall costs, the technology, and the sophistication of present and future governments about the motives of those they govern?

With cheap power and automatized production, we can wonder whether in fact there will be any destitute people left who at the same time would make good colonists. Furthermore, if the trend to prefer security to quick gain continues—and there is little reason to believe it will not—we may have trouble recruiting many colonists on the basis of *that* incentive, too. And, with the ever-growing population, fitted into an ever-growing urban environment and subjected to the homogenizing tendencies of industrial civilization, we may very well end up with a society which psychologically and culturally prefers the close proximity of neighbors and the comforting surroundings of elaborate society to the relative isolation and insecurity of colonial life far from the "green hills of Earth." One can clearly detect this tendency in the frequent query, "Who would want to go to the Moon anyhow?" To be sure, there will be persons, even in such a society, eager to expand into new Space just because there are new horizons. But there may not be enough of them to repeat the historical image we all carry of the European pioneers to the New World. The Norsemen after all did not expand substantially into North America when they had the chance. There are many societies *not* imbued with the culture value of mobility we have

traditionally stressed here. And everybody who can go sightseeing does not—unless it becomes the socially desirable thing to do.

Moreover, barring some unexpected breakthrough, such cheap Space ship power is many years off. But in that time we can expect to see vast developments in other areas besides Space research: in medicine, physics, chemistry, geriatrics, genetics, psychology, with profound consequences for international politics, leisure, work, war and peace, and the values that invest these human commonplaces. It seems sure that the creation of artificial life in the laboratory will shake more men's world views than will the discovery of plant life on Mars. The accommodations of nations or supranations to the impact of population growth—which 100 years from now may reach eight billion—to the impact of extensive automation, to ever expanding urbanization, will vastly and deeply affect the outlook and conduct of mankind. Thus to talk of the impact of the colonization of Space as if it were to be the singular new or profound experience of man is a most unfortunate and naive assumption.

We can ask then, why would large scale colonization be undertaken? For political aggrandisement or military security? If the power sources necessary for such colonization exist then certainly the impact of this power source on earthly matters will be so great that politics, nationalism, and military activity in the name of national policy will be so radically changed that we can't use our present depiction of them as an adequate basis for predicting the forces behind the colonization of Space. To replace our waning natural resources? Perhaps, but will raw materials be worth mining and growing on alien soil if we have the power to efficiently and profitably mine the sea and if we have a chemical technology rather than a metallurgical one? Overpopulation? This seems to be the most likely possibility—if there is no adequate switch to voluntary population limitation (and this seems highly improbable) and if people in large numbers prefer the rigors of colonization to the attraction of massive urbanization.

Our enthusiasms and high hopes for Space derive from our particular satisfactions with

our way of life. These are not necessarily the satisfactions of our neighbor in this society or the others comprising our world today—nor will they necessarily become so far more than a relative handful of mankind. And we need to recognize this now lest we go racing off sinking a disproportionate amount of our human and material resources into Space development on the justification that it holds the primary key to man's future. The primary key may very well lie in some small genetics laboratory where one man on a \$500 foundation grant is discovering how to control mutations. Or the key may lie in an electrode imbedded in a brain, stimulating decades-old memories with photographic sharpness. It leads one to wonder whether so many of our leaders would be convinced that the key to our future lies in Space if the Russians had come up with a variety of wheat that reached maturity in two weeks or a euphoria gas. And, therefore, one can wonder how long leadership will continue to see Space exploration as the place to put so much of our psychic and material energies.

We have attended to some of the social and psychological factors which we can expect to affect the interaction between man-in-Space and society. Let us turn now to the question: Just what is it about the exploration of Space *per se* which is supposed to enlighten man, deepen his wisdom of himself, broaden his appreciation and thereby make him more fully aware of his potentialities? The immensity of Space? The view of Earth as a tiny sphere, one world, and a small one at that? New wonders? New scientific and aesthetic discoveries? Elimination of earthly difficulties by their transformation into the challenge of creating new worlds and fighting new environments? All of them, of course. But none of these is truly a unique consequence of the exploration of Space. All are equally possible and equally as evident right here on Earth, if we but look, and listen, and imagine. The immensity of the Universe is just as apparent in the atomic nucleus or a honey bee. Our one world has been obvious to thinking men for some years now. The bell tolled well before Sputnik and Explorer. Our precarious foothold in the cosmos is written in the rocks, in famines, in the depredations of the million-year-old cockroach.

It seems that what we really do when we look to Space as the new frontier and the purifier of men's visions—what we really do is indulge in the primitive fantasy wishes of children that somewhere there is a good fairy who will make everything right. And this time the good fairy wears a Space suit. It is too easy for man to confuse a rational desire to escape from Earth with an irrational belief that thereby he will also escape Earth's present and continuing problems, his conflicts of interest, his battle within himself.

Certainly man's Space adventure can help profoundly to make a finer creature of him, but only if his adventures on Earth can do so as well. Essentially what this means to a social psychologist is that we must somehow raise our level of education to the point where most men most of the time can appreciate and actively absorb the implications of knowledge and developments in all areas sufficiently to let them enrich their personal philosophies. And obviously this kind of education is only in part a scientific one. Those experiences mentioned earlier which are supposed to broaden and deepen men can be sensed by the poet, historian, and philosopher with very little traditional scientific knowledge *per se*. But they do require knowledge and appreciation of self, of the nature of man and of his creative quests as a creative quest rather than as simply preludes to materialistic pay-offs.

To build a society of enlightened citizens is a far more monumental task than building a colony on Mars. To build such a society requires an understanding of the behavior of men and an application of that understanding to the improvement of society. For those who want most intensely for man to explore Space, the consequences of that exploration and the directions that exploration is permitted to take depend ultimately on how soon and how well we explore man. The inward frontiers are as challenging, as dangerous, as rewarding, and as fraught with social significance as any of those beyond Earth. The future of the exploration of man does not depend essentially on the exploration of Space but our future beyond Earth's atmosphere is most profoundly tied to what we learn about that expanding universe called man.

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