



An ethical duty: Let astronautical development unfold – to make the people more secure



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ABSTRACT

In examining alternative space-development models, one observes that Heinlein postulated the first Moon flight as the outcome of the focused action of an individual – building upon an ample commercial aerospace transportation infrastructure. The same technological basis and entrepreneurial drive would then sustain a fast human and economic expansion on three new planets. Instead, historically, humans reached the Moon thanks to a “Faustian bargain” between astronautical developers and governments. This approach brought the early Apollo triumphs, but it also created the presumption of this method as the sole one for enabling space development. Eventually, the application of this paradigm caused the decline of the astronautical endeavor. Thus, just as conventional methods became unable to sustain the astronautical endeavor, space development appeared as vital, e.g., to satisfy the people’s basic needs (metabolic resources, energy, materials, and space), as shown elsewhere. Such an endeavor must grow from actions generating new wealth through commercial activities to become self-supporting. Acquisition and distribution of multiform space resources call, however, for a sound ethical environment, as predatory governments can easily forfeit those resources.

The paper begins the search for means apt to maintain a societal environment suited for this purpose. Among numerous initiatives needed, dissemination of factual information and moral-right education support take a central position: In fact, the vital condition for true Astronautics – a vast increase in actual respect of moral rights – can also become its best consequence, as the prosperity from the space arena empowers the people, making them materially safer and more secure in their fundamental moral rights.

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1. Introduction

The development of humanity includes a travelogue of the movements of the different species, subspecies and groups across the surface of Earth. The curiosity, inclination, and ability to wonder about “what is beyond” and to move to, and dwell in, new lands appear accordingly as at least a co-evolved trait of this form of intelligent beings. Since a long time ago, this curiosity has extended to the

sites beyond the terrestrial surface; it does not come as a surprise then that, as the technological base for such journeys has come into existence, many individuals have acquired a longing to travel, e.g., to Mars.

And the travel to Mars has belonged to the astronautical plans for a long time. By 1990, it had become rather clear that an attempt to rush a human Mars landing in imitation of the Apollo Program (however likely its success may be) would most probably yield negative consequences for Astronautics. Where the undisputed success of Apollo had led to decades of retreat from interplanetary flight, one could project the “disillusionment” following a Mars

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landing – considering the higher technological challenge, longer travel times, and greater overall risk – to last many times longer. Not only had astronomical progress halted but, even if the Space Exploration Initiative (SEI) suggested by Bush I had taken root and endured until a technical success, it would have represented mainly a diversion (however profitable for some industries). Clearly, a new approach had become necessary to enable advances in the space field.

This paper forms part of a continuing work to research and explain the significance of Astronautics (extraterrestrial imperative – [25]; astronomical humanism – see, e.g., [17,3]), and to outline sound ways to implement the Space Option [10]. Over the years, as general socio-political conditions degraded, technical issues received a lower priority, with emphasis going first to ethical considerations (see, e.g., [6]), and then to fundamental moral issues. Some may consider the author excessively optimistic because of this philosophical tendency – but Ehrlicke [24] himself identified these several levels, long ago:

“The end objectives of solar system exploration are engineering objectives aiming at solar system acquisition in one form or another. They are social objectives in the sense that they relate, or are dictated by, present or future human needs.”

1.1. Historical synthesis

The astronomical ideal originates as an altogether logical extension of human history, seen as a continuous movement into new lands and an effort to increase wealth and knowledge available to the individuals and to the societies they come to form. Accordingly, Astronautics – as the reflections of its founders and pioneers show – is more than an analog of aeronautics, consists in: *“the art and science of traveling, working & living beyond the planet Earth.”*¹ It saw a brief realization thanks in particular to the technical leadership of Wernher von Braun [46,29]. Today – more than 30 years after his death – one can clearly identify him as the most successful astronomical developer to date. His work enabled the realization of the transportation system that took the Apollo spacecraft to the Moon. Then, a great hiatus opened: 40 years later, mere exploration activities remain, mostly limited to some supporting scientific research.

2. Method

Von Braun's success was based on a “Faustian bargain” (Logsdon) between astronomical developers and governments. In 1932 von Braun, unhappy with the rate of progress of their rocket work, entered into the original contract, by offering to the German Army his own services and those of fellow researchers within the Verein für Raumschiffahrt. He then became the (civilian) researcher for liquid-fuel rocket engines development at the Artillery research establishment. The technical success of this first enterprise led him to repeat

the process time and again – requesting, and obtaining, government funding under different regimes [1]. Eventually, this method enabled the early triumph of Apollo; however, it also established the assumption of being the best (or even the sole) one for enabling space development. Subsequently, the persistent attempts to rely on this paradigm only led to the decline of the astronomical endeavor experienced during the last 40 years.

2.1. Critique

By the early 1990s, it was recognized that the progress of Astronautics had essentially stopped, anecdotal announcements by highly-placed politicians notwithstanding. We adopted the position that, when an approach has not worked for a long time, the moment has come to do something different. But, which element needed to be changed? Various authors had begun to talk of a “von Braun paradigm,” to designate aspects of the “space” discourse considered obsolete, like:

- the direct human involvement in Astronautics (“*Humans are destined to physically explore the solar system,*” [31], where obviously “exploration” misses the point),
- government-run projects as a matter of national strength and leadership (“*A centralized, state-run project,*” [49])
- a sequence of specific steps (“*An integrated human space exploration program,*” [19]; inconsistent, as a program differs from a paradigm).

This paradigm concept served to fight manned space activities, arguing that images of large-scale enterprises, deeply-rooted in human economy, etc., had become obsolete, and deserved relinquishment. More modestly, we stood with those holding that wider and better efforts had to be undertaken for convincing people in government – as well as for educating people in general.

3. Space Option

3.1. A reform attempt

As a consequence of the slow rate of progress, people have kept asking for the reason of space activities. Accordingly, a first element for a novel approach consisted in the offer of a diverse and inclusive discussion of the rationale for Astronautics, in the belief that this would have presented people with arguments nearer to their own concerns. But Apollo's vulnerability to an arbitrary termination probably resulted from its isolation from a broad economic substrate, as much as from the focus on a single goal (the Moon landing): therefore, for continuing and lasting processes, one would need to stimulate stronger support levels. A second element had to describe the ampler significance of space activities, especially in economic terms, associated with specific societal benefits.

We suggested focusing not only on the sort of priorities invoked by agencies, but instead to bring forward a discussion of the full rationales for space (i.e., answering the perennial “Why” question) and especially – mainly picking

¹ Interestingly, Ehrlicke [21] stated: “Astronautics is the science of operating in space and traveling to other worlds.”

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