

FUNDING THE FIRST HUMAN EXPEDITION TO MARS

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INTRODUCTION

Much has been written about the technology, the science, and the socioeconomic factors involved in safely sending humans to the planet Mars and returning them to Earth. The literature is replete with mission scenarios, propulsion concepts, and Mars colonies. One need only look at the various papers presented at the different “Case for Mars” conferences to realize just how much coverage the subject of sending humans to Mars has received. For more than thirty years, even before humans first walked on the Moon, missions to Mars have been proposed but never enacted. Various reasons have been offered to account for this vacillation on the part of humanity to delay the first human expedition to the Red Planet, which I will refer to as Mars Human Mission One, or MHM1. Chief among them is the seemingly exorbitant cost of MHM1. With estimates ranging from as low as \$30 billion dollars to as much as \$450 billion and more for a journey that is expected to last at least two or more Earth years, it is easy to understand why, in today’s economic climate, MHM1 has yet to materialize. Another reason given for the delay is that there is not enough public resolve; that, somehow, the general public needs to “jump start” the MHM1 effort. From all this two things have become clear: 1.) Although we already possess sufficient technological know-how to physically propel and return a human (or several humans) to Mars and back; there is a sense among the decision makers (those upon whom we have come to depend for initiating a MHM1 effort) that the effort is too risky and costly; and 2.) Despite all the innovative proposals for sending humans to Mars, no one, including these same decision makers, has seriously taken up the challenge of following through with any one plan, or even to simply agree on one mission scenario as the best for initiating MHM1.

I believe we’ve beaten to death the discussions on technology, missions, and scientific return. What has eluded us is how to pay for that first mission so that we might move forward and execute. When it comes to paying for MHM1, all missions proposed to-date are contained within the “government funding” paradigm, including those which considered international cooperation. That is to say, implicit in their cost estimates was the underlying assumption that the entire effort would be directed by political leaders using government funds (i.e., through NASA). Recall president Kennedy’s call to put a man on the Moon, Reagan’s commitment to build the Space Station, and Bush’s Space Exploration Initiative. Kennedy’s mandate was executed rapidly, but at a high price. Reagan’s legacy, the Space Station, is being executed in a painfully inefficient and costly manner, while Bush’s SEI has yet to materialize in any form. As a result, given these past government funded space exploration efforts, and given the volatile nature of politics, the estimated cost for even the cheapest MHM1 effort has been, until now,

considered out of reach. Today, however, a paradigm shift has occurred in our thinking. There is now a widely held belief that using capital obtained from private sources, MHM1 can be executed much more efficiently than if done relying solely on politicians, using government funds.

299

In this paper I propose to show that a privately funded, properly planned MHM1 can be accomplished quickly such that some representative of the human race will set foot on the surface of the Red Planet by the year 2010. Furthermore, I maintain that, based on the history of government funded space projects to-date, no single government or international effort will accomplish this job; only by bringing together the global human spirit, while taking advantage of market forces, will MHM1 ever be accomplished. I also feel strongly that the cheapest MHM1 effort, going directly to Mars without first developing the admittedly expensive infrastructure needed to establish a continuous route, is the best approach. This is the Zubrin model detailed in his book, *The Case for Mars*. I will say more about this in the next section, but, for a justification of using this approach over others, I think Zubrin makes very good arguments and so I refer the reader to Zubrin's book. Two areas in which I disagree with Zubrin, and on which I will expand in the next section, are the objectives of MHM1 and its crew composition.

Finally, on a more philosophical note, it may be argued that human progress is dependent on the maturity of the human race such that, in order for human colonization of another planet to take place, it is necessary for humans to have achieved a single global culture that permits utilizing the entire world for this effort. If such a requirement exists, then we are, indeed, far from being capable of sending humans to Mars. However, I believe that what I propose in this paper, if properly executed, can have the effect of galvanizing all humans on Earth to, effectively, create that global culture. In any case, I'm convinced that going directly to Mars, and initiating the effort now, is the only way to see this happen in our lifetime. I hope this paper will more than stimulate those gathered at this Founding Convention of the Mars Society so that those who hear what I have to say, and who agree with my views, will assist me in starting the process. By starting the MHM1 effort now we can, within a decade, witness the first expedition to the Red Planet knowing fully well that it was through our dogged determination that it happened when it did. Let's get on with it!

THE FIRST HUMAN EXPEDITION

The debate over how and when to send humans to Mars has raged since Neil Armstrong first set foot on the Moon three decades ago. Since then, scientists, engineers and analysts have all conceptualized countless missions, technologies, cultures and scenarios associated with sending humans to Mars. However, during these same three decades, no one mission or scenario has emerged as the choice for a first human expedition to the Red Planet. Although a thorough evaluation of the different mission proposals is beyond the scope of this paper, in developing a cost figure for MHM1, I have assumed that MHM1 will consist of a straight shot to Mars, similar to the Apollo project, and following very closely along the lines of Zubrin's

“Mars Direct” concept. Why this approach? Because, as Zubrin points out, this is the lowest cost effort and one that will put a human on the surface of Mars in the shortest time. It also bypasses, initially, the need to develop the expensive infrastructure needed to support other, more complicated concepts. Zubrin’s estimate of the cost for Mars Direct was in the neighborhood of \$50 billion dollars. For the purpose of developing my arguments in this paper, and to support certain assumptions that deviate from Mars Direct, I have placed the cost of MHM1 at \$100 billion. Using this figure, a very conservative estimate for a Mars Direct-type mission, there can be no doubt as to whether MHM1 can be funded from entirely private sources, assuming we start executing now and unless the analysis proves otherwise.

300

Let’s now consider in a little more detail what MHM1 might be and how it differs from Mars Direct. All space exploration concepts that I have read about have had as their primary mission to increase scientific knowledge. With the exception of satellites and the now popular but still nascent “space tourism” industries, space exploration projects have traditionally been executed by scientists for the sake of science. I propose that MHM1 have as its primary objective to simply “prove” that we can safely send humans to Mars and return them to Earth. There is no other objective that needs to be fulfilled by this first mission. Any science we derive above and beyond this objective will be “icing on the cake”. We can always send instruments and robot probes to gather data and return samples as we’ve been doing since the first Viking lander. What we would be looking for from a first human expedition is the human perspective and nothing else. There is no need to evaluate the scientific merits of the expedition, or the technological breakthroughs promised by the effort. However, given that even Mars Direct would include a protracted stay on the surface of Mars, it would be prudent to assign the first crew the task of “proving” certain human capabilities while on Mars. From testing out the atmosphere to constructing raw materials out of the Martian surface, to looking for water, the first humans can not only keep themselves quite busy, thereby reducing possible strains on crew cohesiveness, but could potentially greatly facilitate a trip by a second crew to the Red Planet. So, without seeking information on geologic formations or Martian paleontology, we can have a successful and productive mission, filled with information worthy of scientific analysis back here on Earth.

Having established that we are going to Mars “because it’s there for humans to explore”, let’s consider the crew composition. That is, how many humans are we sending there and who are they? Zubrin established a crew of four for Mars Direct. Since I’ve already determined that MHM1 is to only prove our ability to send humans to Mars and back, and nothing else, I suggest that the first crew consist of five individuals. From psycho-social considerations, an odd-numbered crew is preferable to an even-numbered crew. Zubrin had established early in his book that the minimum number of individuals for this first crew might be three, and I agree that three constitutes a minimum.. However, considering the possibility of the loss of one life, we may find ourselves with a crew of two, or even one, sometime during the crew’s long stay on Mars. Therefore, I believe that, if our primary objective is to send humans to Mars and return them, then we need to establish redundancy in the human cargo, and assure the return of

our space vehicle, by sending a minimum of five individuals.

Next, I would like to consider who these individuals must be that make up our first crew. Again, citing Zubrin's concept, Mars Direct called for four individuals. As Zubrin put it, two "Scottys" (referring to the television series Star Trek characters) and two "Spocks". Or, in the vernacular, two "mechanics" and two "field scientists." However, Zubrin based this on the assumption that the mission of MHM1 is to gather scientific data. In addition, Zubrin defined a mission failure in terms of the failure of one of the technical systems (as in "the spaceship"), rather than considering the failure of individuals to gather the data, or simply considering the death of one or several of the crew members. Assuming that MHM1 is simply to prove that we can send humans to Mars and back, and having established a minimum redundancy in the human cargo, I suggest that the individuals whom we send on this first voyage should all be "mechanics". No scientists are needed. Why? Because, if we are trying to insure that we get humans to Mars and back safely, the only way we can do that is if all the crew members understand the technical systems equally well. Anyone who is not versed in the technical systems used to deliver them to Mars and back, stands a good chance of being doomed should he/she be the only one left alive. Furthermore, having several "field scientists" with no hope of fixing their return launch vehicle is equivalent to not having them there at all, resulting in mission failure. On the other hand, if repairs are needed to successfully effect a launch for the return trip, having several "mechanics" will accomplish the job much more efficiently. The only caveat I would add to this is that, during crew selection, crew members be selected who have broad backgrounds founded in science and the humanities, so that Earth-bound observers can obtain a more "complete" human perspective of Mars. It will also help when we consider obtaining funds for this mission, as we will see in the next section.

301

To summarize, MHM1 will consist of a crew of five "mechanics", with broad backgrounds in science and the humanities, who will go to Mars with the single purpose of "proving" that humanity is ready, willing, and able to go to Mars and back. Any scientific knowledge gained from this first human mission (and I assure you there will be much despite the lack of "scientists" on board) will be "icing on the cake." As for the cost of this mission, my assumption of \$100 billion remains a conservative estimate, even after accounting for the additional crew member, when compared with Mars Direct. For comparison, Table 1 shows the cost associated with past space projects.

Table 1
COST OF SELECTED SPACE PROJECTS

Source: Historical data obtained from NASA web page (<http://www.hq.nasa.gov/>)

FUNDING OPTIONS

Now that we've established a proposed mission for MHM1 and a conservative estimate of the cost, the next question to be answered is, how will we pay for this effort? As discussed earlier to some extent, the answer, after three decades of debate, appears to be pointing towards private funding. This is evident from the many papers on privately funded concepts being presented at this Founding Convention of the Mars Society. What sort of private funding can we obtain to pay for MHM1? I propose that, despite the seemingly large amount needed to pay for MHM1, \$100 billion dollars, we can do it, starting now, through a well planned and well coordinated business plan and marketing effort that takes into account each phase of the mission from systems design and fabrication to crew selection and training, to mission execution, and, even, to post-mission activities. We can pay for MHM1 from the same private funding that is generated daily across the globe in support of charitable causes, the same funding that supports our entertainment industries, and the same funding that supports our capitalist socioeconomic complex.

There are several sources of money that pour daily into the economies of the world and which can easily be tapped to pay for MHM1. These include individuals, corporations and governments. In addition, there are several methods by which the Mars Society can go about obtaining these funds. Several of these methods are presented here and, in some cases, are discussed separately in presentations made by other individuals at this Founding Convention. However, I have not had an opportunity to share any of my ideas with the other presenters. Therefore, where any of the material contained in this paper also appears in separate papers by other authors, it is purely coincidental. The fact that many Mars activists are starting to sing similar tunes on how we pay for a MHM1 mission portends the paradigm shift taking place as we move away from soliciting government money and, instead, realize the greater potential inherent in using more efficient, and effective, capitalist methods for getting the job done. What follows is a list of different methods of obtaining funds to pay for MHM1 and brief discussions of how the Mars Society might apply these methods to the MHM1 effort.

302

CONTRIBUTIONS - INDIVIDUAL, CORPORATE, GOVERNMENT

If we examine how much disposable income is in the hands of every individual in this world (recall that, for MHM1, we want to get the entire world involved, not just America - more on this later), we might get an idea of whether we can generate the necessary capital to execute a MHM1. According to the *World Development Report*, published by the World Bank, there

were the equivalent of an estimated \$4 trillion dollars in savings worldwide in 1988. Let's assume that, ten years later, in 1998, taking into account population and inflationary trends, the amount of money held in savings worldwide is only slightly larger than that. Estimating how much of this amount can be considered discretionary disposable money is a difficult task. However, if we look at the relationship between what is needed for MHM1 and this amount, we see that MHM1 can be paid for by inducing the world to contribute just 2.5% of its savings. How many of us would be willing to take 2.5% out of our savings to contribute to MHM1?

Now let's see how we might go about inducing the world to contribute this sum. Looking first at individuals around the world, we would be interested in people in countries who have the highest level of disposable income; this includes most developed nations and some developing countries. Table 2 shows the countries with the highest per capita income as reported by the World Bank for the year 1988 (I have used this report only for illustrative purposes; more up-to-date information can be obtained from other sources and the same process applied). As shown in the table, per capita income for the top ten countries in 1988 exceeded \$15,000.00 dollars. In addition, the same report showed that global savings amounted to a total of more than \$4 trillion dollars. These figures are important because they provide a basis for estimating the amount of individual disposable income available based on per capita income, population, and rate of savings. In addition, one can look at how much money is spent on non-essential things like entertainment to discern total discretionary spending and then develop a per capita discretionary disposable income figure. Establishing these figures at this time is beyond the scope of this paper, but is a valuable exercise when developing a marketing plan for MHM1.

Table 2

PER CAPITA INCOME OF SELECTED COUNTRIES

Source: *World Development Report*, 1991, World Bank

If we now consider the wealthiest individuals in the world, who might represent our first target group for soliciting contributions, we notice that there is a great deal of wealth (\$700+ billion

dollars) held by the one hundred (100) wealthiest people, as reported in *Forbes* magazine. Just one seventh of their net worth would pay for MHM1. As shown in Table 3, even just the ten wealthiest individuals in the world possess enough wealth to support MHM1. Naturally, this would require that they contribute a considerable percentage of their net worth. So, it would seem that a successful campaign to obtain contributions from the wealthiest people may generate a considerable portion of the amount needed, at least for the initial phase, for MHM1.

Table 3

WEALTHIEST INDIVIDUALS AS REPORTED IN *FORBES* MAGAZINE

Source: *Forbes* Magazine on the internet (<http://www.forbes.com/>)

Another source of money in the form of contributions can come from corporations around the world. Corporations tend to be worth more than individual human beings alone, but, in some cases, may not have the flexibility to contribute as much as a single, wealthy individual. However, many corporations do contribute a small percentage of their profits to worthy causes or charities. Estimating the net profits of all corporations and looking at contributions made to charitable organizations, and assigning a percentage that might be contributed to MHM1 is an exercise that is beyond the scope of the present discussion. However, as with discretionary disposable income, this type of calculation is useful in developing a plan for obtaining such funds. In addition, as explained in a later section, corporations may be induced to contribute as sponsors of MHM1 in some capacity. For reference, Table 4 shows net profits of selected American corporations.

Finally, there are governments. Considered as individual entities, governments, like corporations, hold greater wealth than can be obtained from any one human being alone. The

danger in obtaining funds from governments lies in the possibility of falling into the trap of allowing the same governments partial or total control over the MHM1 mission. Therefore, a carefully drawn plan for soliciting funds from government entities must include careful scrutiny of the laws and regulations affecting the disbursement of the funds and any strings that may be attached. As with corporations, governments can contribute as sponsors by providing, for example, launch services or facilities.

304

Table 4

NET PROFIT FIGURES FOR SELECTED AMERICAN CORPORATIONS, FOR FY 97

Source: *Forbes* Magazine on the internet (<http://www.forbes.com/>)

In summary, one method of obtaining private funds is to solicit contributions from individuals, corporations and governments around the world. In the United States alone, in 1996, over \$120 billion was given away to charitable organizations. Part of this figure represents some of the discretionary income we are concerned with as we try to induce individuals to contribute to MHM1. If Americans have more than \$100 billion that they can “give away” in one year, there is more than enough money available to fully support MHM1 and a well orchestrated and successful effort at soliciting money from all these investment sources might be sufficient to pay for the entire mission. However, realizing that it’s difficult to make everyone part with his or her money, we must consider other methods to “skin the cat”.

MEDIA BLITZ

Most of us are very familiar with the manner in which advertising and the media induce us to direct our disposable income towards certain specific products, entertainment, and services. A well orchestrated “media blitz” campaign used to generate the funds needed to support MHM1

can generate a tremendous response from individuals, corporations, and governments all around the globe. This is evident from the response to such profitable efforts as sending human DNA samples to Saturn, spreading ashes of the deceased in orbit, and even selling extraterrestrial real estate.

One part of any successful media blitz campaign includes advertising. As everyone in private business knows, this can be a very expensive method of obtaining customers. Using the movie industry as an example, we typically get news stories about an upcoming motion picture a few months before the actual release of the movie. In the case of summer hits, some movies are advertised as much as a year before their release. This can be done for MHM1 to begin developing a psychological mind-set in the general public about the importance of this mission, and to support any merchandising effort, as discussed in the next section. By continuing to hammer at the public with ads, the support for the project will grow during the two or three years leading to launch date. For example, during the crew selection phase of the project, the right advertising can have an electrifying effect on the general public as they follow (and are intimately involved with) the crew selection process and the different crews.

Another aspect of a well executed media blitz is use of television, motion picture, books and the Internet computer media. While this aspect has fuzzy overlaps with the advertising discussed in the previous paragraph, here I point to coordinating with these industries to support the effort by including some aspect of the project in their programs. For example, web sites can be created for the project (this is a given), a TV show can include the project in its setting, and even motion pictures can have some part of the project (or the entire project) addressed in their content. Obviously, this type of publicity needs to be planned and coordinated at the earliest stages of MHM1 planning to derive its greatest value.

305

Finally, there are the other types of publicity accomplished through such media as merchandising, sponsorships, and special events. These are discussed separately below. Although a media blitz may cost a substantial amount of money without the possibility of a measurable return, it has a value that is difficult to quantify. Nevertheless, this value needs to be addressed somehow during the early planning stages of MHM1 to determine if the cost of a media blitz is justified.

MERCHANDISING

I'm giving this topic a separate heading because, unlike pure advertising, merchandising has a measurable return on the money invested in creating the merchandise. Most space activists are familiar with selling T-shirts or mugs to promote a cause. This, on a very basic level, is the idea behind merchandising. We invest some capital in specialized products which are then sold at a profit. Again, there is some fuzzy overlap with other methods of raising funds discussed below, but, as an example, let's discuss the frenzy that takes place during some special sporting event such as the World Series or Super Bowl. For some limited time during these events, every item one can think of is sold at highly inflated prices (thereby greatly increasing profits)

and, in most cases, they are sold quickly. Since these events are of short duration, the peak selling period is usually very short; on the order of days. Because of this, any miscalculation on the type of product being sold can quickly turn what appears to be an obvious profitable concept into a nightmarish loss.

A good example of the profit potential that can be derived from merchandising a space project is the phenomenal success of *Sojourner* replica toys sold during and after the Pathfinder mission to Mars. This is a good omen for MHM1. Since the Pathfinder mission was carried out under the auspices of a government agency, NASA did not realize much in the way of royalties from the sales of these toys. However, an MHM1 mission that is fully funded by private investors will need to develop copyrights, patents and other protection that will impact profitability. These need to be closely monitored during any discussions with the media (as outlined in the previous section) as well as during any part of a merchandising campaign.

A good start for a MHM1 merchandising campaign might be to simply sell the rights to (or collect royalties from) toy manufacturers for toy versions of the different systems used to execute MHM1. As with the media blitz, a merchandising campaign needs to be carefully integrated into the entire MHM1 project to derive maximum profits. I believe merchandising should play a role in generating funds for MHM1, and be included in its Business Plan, if only to help pay off the initial investment.

OLYMPIC GAMES/WORLD CUP SOCCER

We are all familiar with the quadrennial events known as the Olympic Games and the World Cup (soccer). These events, symbolizing the human spirit of cooperation over competition, are carried out by several nations and paid for by different entities within each country. Since patriotic pride plays a large role in these games, each country (through government action and public support) pays for its group of athletes to participate. Looking at the American method of supporting our athletes in these events (other countries are similar, though some have more government backing), we see that a great deal of support is in the form of sponsorship. From individual contributions to help individual athletes, to corporate sponsors of specific athletes or teams, to corporate sponsorship for the entire American contingent of athletes, enough money and other support are obtained to pay for American participation in these events.

306

MHM1 is an event that lends itself well to obtaining sponsors in different forms. It is a unique event in human history taking place over a period of approximately four years from launch. As such, it shares many common traits with the Olympic Games or the World Cup. A suggested strategy here is to obtain sponsors for different phases or aspects of MHM1, thereby increasing sponsorship participation. For example, sponsors (individual, corporate and government) can support specific hardware, a specific portion of the project, individuals working on the project, or the entire project itself. As with other methods discussed above, there is some fuzzy overlap between this method of obtaining funds and the solicitation for contributions that was discussed above. The major difference here is that, in some cases, the

sponsor solicitation might involve goods or services, rather than money.

For an example of a space project that relies on global sponsorship, let's look at the Space Station program. The space station is "sponsored" by several countries, each with its own share of responsibility for the project. Each country contributes according to the maturity of its aerospace industrial base. Unfortunately, because the sponsoring entities are governments, rather than private investors, this project is experiencing the traditional cost overruns and schedule slips associated with previous government projects.

For MHM1, I envision the international community doing the same and contributing as sponsors wherever and however they can. However, to maximize investment through sponsor participation, we need to consider creative strategies that permit full participation by all. As an example, at one time it was suggested to NASA that they seek additional funding for the Space Station by selling advertising space on the outside of their modules to corporate businesses such as soft drink manufacturers. The idea being that, for example, the Coca Cola company might pay quite a bit of money to have one of the space station modules painted in the Coca Cola logo to look very much like an oversized can of the popular soft drink hanging from the space station. Unfortunately, to the bureaucrats running the program this did not seem like a good idea and the space station is still, today, experiencing costly overruns and schedule delays.

To summarize, MHM1 can obtain funding from sponsors in the form of individuals, corporations and governments. As with solicitations for contributions, the potential for obtaining enough funds to cover the entire mission exists. A carefully planned sponsorship program will permit participation by everyone across the globe, thereby maximizing the amount of funds generated.

LOTTERIES/RAFFLES/AUCTIONS

The last source of funding that I will consider here is holding lotteries, raffles, or auctions. There are other sources that I will not discuss at this time, though they merit discussion. Among these are contributions from foundations and other charitable institutions. The reader is left to determine how these sources might contribute to an overall funding program to support MHM1. Lotteries, raffles and auctions share similar characteristics in that a single prize is bid upon by several individuals who spend, or invest, an amount much less than the value of the prize to be won. In the case of lotteries, a ticket is purchased containing a possibly winning combination of numbers such that the dollar amount to be won is many times greater than the purchase price of the ticket. For raffles, there is usually an item to be won, rather than a dollar amount, such that the value of the item is much greater than the purchase price of the ticket. Similarly, in an auction, different individuals bid a certain amount of money for an item with the expectation that what they pay for the item is less than that at which the item is valued.

Looking at the major lotteries across the country, one quickly gets the impression that

discretionary disposable income in the US is quite high. Even lotteries across the globe seem to generate large amounts of money as individuals seem to pour what they can into the highly improbable dream of obtaining a winning ticket. In California, the state LOTTO game generates enough money to award more than \$4 million dollars to the winner each week. As with lotteries and other games of chance everywhere, as the winning amount increases (due to, in the case of the LOTTO, no winning numbers having been drawn), there is more participation, driving the winning amount even higher. Can such methods of obtaining funds work for MHM1?

I believe a carefully planned and executed MHM1 effort should consider establishing lotteries, or raffles or auctions to generate funds. However, given the complexity of this project, and the overhead associated with coordinating and maintaining any one of these fund raising activities, the return to the MHM1 project may wind up being negligible. There is also the danger in these type of activities of raising unrealistic expectations such that, if no winners are identified (because no one selected the winning combination, for example), participation will drop off to the point of making the activity a money losing proposition.

A NEW CHALLENGE

Up to this point, we have discussed the first expedition to Mars in context of the mission and how much it might cost. We also examined possible sources of private funds that could be used to pay for this mission. And, we've even considered methods used for obtaining these private funds. The question before us now is, who will act to make this happen? The answer, I believe, is here, at this Founding Convention of the Mars Society. We, the members of the Mars Society, are the only ones who believe in this mission enough to get the process started.

Today, I propose that we form a planning committee immediately to lay down the groundwork for the MHM1 effort. This committee will map out a schedule to launch, and will outline a business plan that we can then sell to potential investors. This committee will also be responsible for developing marketing strategies that will lead to making MHM1 a success. I have set a personal goal to develop a schedule that can put a human on Mars by the year 2010. I have considered some of the necessary steps that are involved in making this launch date, and I have even looked at the sequence of events required to make everything come together at the appropriate time. However, a thorough discussion of these concepts is beyond the scope of this paper.

One individual alone cannot work this complex project and make it come to fruition. Indeed, one nation, alone, cannot carry it out. This project, by its very nature, requires the backing and participation of the entire world. But we cannot wait for the world to clamor for MHM1. Instead, we must come together at this Founding Convention to begin the process and bring our ideas to the world. I look forward to working with Mars Society members to bring the greatest adventure in human history to life.

SUMMARY

Although I am not a well known activist in the space exploration or scientific communities, I have been following the space program with a great deal of interest from the early days of

Apollo. Like many Mars exploration advocates, I, too, believe that we humans should expend a good proportion of our collective energy in proving that we now are capable of sending humans to another planet and back. I realize that The Mars Society has developed a cautious approach, incrementally proceeding from small, hitchhiker payloads on government funded missions to stand-alone private robot missions and, eventually, human exploration. Unfortunately, for me as well as for many other Mars exploration activists, this approach is unnecessarily slow and may actually delay human exploration of Mars even more. My reason for saying this is that the complexity involved in executing a well planned mission, as well as the public, governmental and economic factors influencing this type of activity could, at any time and under the right circumstances, derail the best effort to send humans to Mars.

308

In this paper I have presented what I consider clear evidence that a MHM1 mission can be accomplished starting today, using privately obtained funding. The seemingly exorbitant cost of MHM1 is no longer an obstacle to carrying out this mission; we only need the will of a “critical mass” of individuals to begin the process. I believe that if we begin now, we can see a human landing on the surface of Mars by the year 2010. Therefore, the time to begin the human exploration of Mars is now.

309

Mars One will establish the first human settlement on Mars. Mars One invites you to join us in this next giant leap for humankind! The next logical step for Mars exploration is permanent settlement, where crews that go to Mars stay and build a new society. Humans settling on Mars will inspire us all to make Earth a better place. Technology, scientific understanding, cooperation – is there anything we cannot achieve? The Mars One Foundation will help solve components of Mars permanence: crew selection and training, and technology for local resource use and to grow food. We are a global initiative focused on the greatest adventure of our time. We are going to Mars. Join us! Support now. Latest Press Releases. Lenovo™s Natio The one that takes people to Mars. DST will be adapted for autonomous work with a crew of four people lasting up to 1000 days. Reaching the moon, DST will automatically dock with the DSG station. The weak point of the NASA plan is the need to provide substantial and sustainable funding for decades. So far, NASA has no confidence in the budget, not even for the next year. Now the US Congress and the presidential administration are looking for ways to cut state budget spending. Under these conditions, the White House has already expressed support for NASA, and the space agency received only a slight reduction in funding in the budget bill. The final word rests with the legislators. But not in money alone, as they say. Hope is the first mission to Mars launched by the United Arab Emirates. The country aims to use it to transform global science, the nation's space sector and its economy. Here's what you need to know about the mission. "Arab civilization once played a great role in contributing to human knowledge and will play that role again," Vice President Mohammed bin Rashid said.