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A HISTORICAL PERSPECTIVE ON THE MOON BASE--THE BRITISH EXPERIENCE

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Jones and Finney: Historical Perspective - Cook and Australia

ABSTRACT

Among the many historical episodes that have relevance to the establishment of a human base, the voyages of Captain Cook, and the founding of Britain's Botany Bay colony in Australia seems particularly appropriate. The process resulting in the selection of Cook rewards study, as do his relations with the Admiralty, with the scientific establishment and with the scientists who accompanies him. Britain's tight control of the Botany Bay settlement and its unwillingness to promote early self-sufficiency may have delayed the time when Australia became self-supporting. Structuring the lunar base to offer opportunities for private initiatives may hasten the day when it becomes a self-supporting settlement rather than an externally supported scientific base on an Antarctic model.

Learning to live and work in space is going to require some adaptation. However, we should remember, in the words of historian Alfred Crosby (1985), that "we have done all this launching out into space before." During the five million or so years that the hominid line has been on this planet, our ancestors have constantly probed the limits of human capabilities, learning through the development and use of culture and technology, to live in environments for which they were not physically adapted.

Parallels can be drawn between the coming era of space development and: the spread of hunting and gathering peoples across the face of the planet; the oceanic exploits of the Polynesians and the Vikings; the flowering of Greek culture around the Mediterranean during the classical period; and the stillborn Chinese maritime initiative of the early Ming Dynasty. Each of these, along with the later explosion of European mariners into the World Ocean, have lessons to teach us, providing both inspiration and caution.

However, in this essay we would like to highlight two episodes from the British experience. We have chosen these examples as illustrations of the interplay between individuals and institutions, between goals and means.

Captain Cook

In 1768, Britain was the superpower of the day. The long war with France in Canada was drawing to a close following the fall of Quebec. Tensions were beginning to build with her American colonies and would soon lead to revolution, and another sort of revolution, this one in industry, was altering the fabric of British society. Britain was beginning to dominate world commerce and the seas that were making global trade possible. However, in those middle decades of the Eighteenth Century, despite the fact

that Europeans had been sailing the Pacific for nearly two centuries, much of that vast ocean was still uncharted, owing to the fact that navigational techniques still relied on dead reckoning and latitude sailing. The problem [B determining longitude was unsolved and, as a consequence, much of the map of the world was blank or filled with lands that were more fantasy than reality, particularly in the southern Pacific. However, in his three voyages James Cook would replace the mapmakers' fantasies with a known ocean and would make global voyages safer and more certain (Beaglehole 1972).

The primary motivation for Cook's first voyage was scientific. One of the central problems of the day was that of astronomical distances. In 1767, the Royal Society urged His Majesty's government to send a party into the Pacific to observe the Transit of Venus. The government was persuaded but the Lords of the Admiralty were looking beyond the narrow scientific question and saw an opportunity to answer more practical problems. They also wanted their own man as leader of the expedition. Consequently, they chose not from the scientific establishment but from naval ranks.

The choice of Cook was inspired. He succeeded beyond all expectations, removing the mythical southern continent from the maps, adding the east coast of Australia, accurately plotting the positions of the far-flung islands of Polynesia, and correctly surmising the existence of Antarctica. He also proved the worth of the new timepieces with which the problem of longitude was solved, and in the bargain defeated scurvy and gave Europe detailed knowledge of the peoples and products of the Pacific. Perhaps the greatest tribute came from Benjamin Franklin who in 1778 urged that ships in American service "treat the said Captain Cook and his people with all Civility and Kindness, affording them, as common Friends to Mankind, all Assistance in your Power."

Yet, however much the Cook saga may provide inspiration for those who would explore the ocean of space, it should also provide some cautions. To be sure, Cook was obviously a much better man to command the first voyage than an astronomer or a certain geographer the scientific establishment had proposed. A practical seaman, an accomplished navigator, and a leader of men was needed for the three year circumnavigation--not a scientist. Similarly, just before the second voyage Cook was undoubtedly right when he forced the removal of superstructure built for the scientists and their gear on HMS Resolution--even though it meant the immediate resignation of Joseph Banks, then the expedition's chief scientist and later to be the renowned president of the Royal Society. An expedition to the South Seas in a top-heavy and hence unseaworthy vessel would almost certainly have ended in tragedy. Better that Banks be angry for a time. He got over it.

But Cook should never have taken command of the ambitious third voyage---made, ostensibly to search for a Northwest Passage from the Pacific side. By then he was thoroughly worn out and probably chronically ill as well. What is more, this bright star of the Royal Navy, who had already done so much to advance knowledge, had become so alienated from scientists that he would have none aboard his ships. So an exhausted Cook, without equals to advise or perhaps restrain him, sailed to his doom; he was killed in Hawaii, the victim of one of his own rare lapses in judgment.

Inspired and thoroughly professional leadership is obviously required in any difficult undertaking---be it in space or on Earth. Any space-faring nation would be lucky to have a Captain Cook emerge from its astronaut corps. Yet, if we are to take the Cook saga seriously, we should be wary of the dangers inherent in relying too much on such determined and self-confident leadership or of allowing ambitious technical goals to drive

missions. Human factors must be taken into account, and above all, teamwork is needed as a complement to leadership.

Australia

One of the immediate consequences of the Cook voyages was the establishment in 1788 of a British colony in Australia (Shaw 1972). Botany Bay, like several of the earlier American colonies, started out as a penal settlement. But Australia was very far from England, and as those first parties were to discover, a continent less blessed with Nature's bounty. Although there are parallels with the American experience, parallels of which many people were aware at the time, Australia presented unique problems. For the first few decades there were few free settlers; potential immigrants were kept away by distance, a lack of opportunity, and official policy that discouraged their coming at least in the beginning. Australia was for a long time a creation and ward of the British State. But free settlers did come. They and the convicts who had served out their terms found ways to make livings and gradually to build a self-supporting community. In time Australia grew to the point that the presence of convicts no longer made sense. All that happened in less than a lifetime.

The American Revolution had created a crisis for the British penal system. Convicts from the slums of the growing cities were no longer welcome in the Americas. In 1784 James Matra, who had sailed with Cook, promoted the idea of an Australian settlement, although as a haven for American loyalists and as a theatre for new commercial ventures. The government was not much interested in the commercial possibilities, but was willing to entertain the idea, soon championed by Banks and by the Home Secretary, Lord Sydney, of a penal colony. It was an idea that had worked

before in the Americas. As originally conceived the settlement would soon become self-sufficient, thanks both to the rich soil Banks described and to the toil of convicts. Unfortunately, it did not work out that way. When Captain Phillip arrived at Botany Bay in 1788 with a party of over 1000 people, he discovered that the soil was not at all suitable and that few of the over 700 convicts had any useful skills. By 1790, Phillip was writing to London, "The sending out of the disordered and helpless clears the goals and may ease the parishes from which they are sent; but, Sir, it is obvious that this settlement, instead of being a Colony which is to support itself, will, if the practise is continued, remain a burden to the mother country." What Phillip desperately needed were people with the appropriate skills and with an interest in the future of the settlement. But London balked at the idea of even granting land to convicts who had finished their sentences. The thought did not square with the perceived need for punishment. Would not news of their success incite further waves of crime in the cities?

In time good farm land was found and the settlement began to feed itself. But there were other problems. Officers in the New South Wales Corps were, like their counterparts throughout the British Empire, often younger sons blocked from family wealth and titles by elder brothers. They were in Australia to make their fortunes. A group of them, including the notorious John MacArthur, gained virtual control of the economy, buying grain cheaply in years of abundances and selling it dearly in the frequent years of devastating drought. In 1806, Governor Bligh tried to undermine the speculators, buying wheat at a fair price in a year of plenty and distributing meat from government supplies to farmers devastated by floods. But MacArthur and his friends were not to be denied; they rebelled and

eventually, through the aid of powerful friends in London, had Bligh recalled.

MacArthur and people like him had positive roles to play as well. They introduced sheep and, with their accumulated wealth, acquired the large tracts of land needed to support flocks in the poor climate. Wool was the first step toward self-sufficiency, the first exportable product of the settlement.

But who was to get land and at what price? Would convicts continue to work for private individuals and, in a kind of work-release program, be able to work for themselves part of the time? How would free settlers be encouraged to come? And how much control would the colonists be permitted to take of their own political destinies?

It would be decades before these issues were even partially sorted out. Transportation of convicts to the built-up areas of New South Wales ended in the 1840's. The discovery of gold brought a flood of new settlers in the 1850's who then had to be absorbed into the mainstream of the settlement as the gold ran out. Despite the lure of the great expanses of open land, Australians learned slowly that much of their continent was not made for farmers. From the beginning Australia has been an urban nation, largely confined to a narrow strip of fertile coast in the south and east.

Many of the problems of the early decades arose because Australia was a different place than many believed in the beginning. It was a dry land subject to frequent drought. British crops did poorly. And so too did the convicts who were cast into this new land without basic survival skills. No one--convicts, governors, London politicians--really knew what they were getting into. Some thought they knew from the American experience. But it

really was a different and, in many ways, far more difficult place. But they did learn. The modern nation is the product of those lessons.

And what does the Australian experience have to teach us, as we contemplate a return to the Moon? The details will only become apparent as we proceed. But in broad brush a few pertinent features stand out. Living on the Moon is going to be a new and initially difficult experience. The lunar base will start small and be very dependent on Earth. The first "settlers" will have to be technically trained: astronauts, engineers, and scientists. Bureaucracies will oversee the operation from afar; administrative control will be and must be tight. However, if the lunar settlement is to grow and eventually become self-supporting, some helpful features can be built into this social experiment from the beginning.

We believe that the stated purpose of the lunar base must be eventual establishment of a self-supporting lunar settlement. If that purpose is clear from the beginning then the inevitable transition from a tightly administered scientific base to a more open community may come more easily. If, on the other hand, we say that we are going for purely technical reasons, then the interests of entrepreneurs and private settlers (on whom ultimate success may well depend) might not receive proper attention.

There will be conflicting interests, shifting purposes, short-sightedness, greed, and mistakes. The lunar base is going to be expensive and will remain so for longer than some of us would like. But if we give careful thought to the social design of the experiment now, and keep our eyes open both for the pitfalls and the opportunities that will come along later, perhaps self-sufficiency of the lunar settlement might happen sooner than it did in Australia.

And finally, we should remember Britain did support the Australian settlement long enough for it did succeed. Let us hope that we can do the same for the lunar enterprise.

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