

THE ART OF LIVING IN SPACE:

A Preliminary Study For

The Local Government Of A Space Community\*

Dr. Patricia M. Sterns  
Dr. Leslie I. Tennen  
Attorneys and Counselors at Law  
Phoenix and Tucson, Arizona U.S.A.

Abstract. Mankind's ancient dream of living in space may soon become a reality. Permanent space settlements are being considered for a variety of specialized programs to improve the human condition. The environment of space offers the promise of limitless experimentation, and the potential to dramatically improve the quality of life. Although each extraterrestrial settlement may present a unique societal structure, a primary consideration necessarily common to all settlements will be the need for a form of limited home rule.

Throughout history, philosophers have considered alternatives for community governments. These alternatives strive to attain the virtuous state, where the interests of the society and the individual are in harmonious accord with their nature. As mankind moves into space, community organization, philosophical goals and overall ensocialization will be in the control of the settlers. Thus, a space settlement may provide an appropriate forum in which to apply human ideals to reality.

This study describes the existing legal and social principles that will greatly influence the establishment and life of a space settlement. Philosophical tenets are examined and applied, to develop a plausible alternative for the foundation for societal organization of a community in space. The concept of limited home rule is then examined and explained by consideration of the traditional areas of local concern that will be present in the context of the space habitat.

I. INTRODUCTION

If there is any question about the inevitability of a society of man that will carry the individual to his personal fulfillment, there is no question of the inevitability of a superorganism of a thousand minds that will ecologically cradle such persons; it is the city of tomorrow. (1)

The city of tomorrow may be far removed from the confines of earth's eco-

logical sphere. The advent of settlements in space is forthcoming in the near future, as technology and human aspiration reach toward the stars. (2) It is the purpose of this preliminary study to examine the primary legal, philosophical and sociological factors which need consideration as technology gives birth to a new home for mankind. (3) Space settlements will provide a unique opportunity for human beings to utilize their knowledge, experience and ideals in tempered coordination, so as to create a harmonious arcology (4) which fosters growth and fulfillment of individuals and society. In order to accomplish such a goal, the legal, moral and societal systems which will influence and underlie the founding of space settlements, and necessarily affect their growth and continued existence, must be understood. This preliminary study avoids unwarranted assumptions (5) and realistically approaches the advent of settlements in space. In this way, the settlement is viewed as a unique forum in which to apply human ideals in reality, finally actualizing what skeptics have long labeled utopian thought.

The continuing study of the Art of Living in Space identifies and applies the philosophical premises underlying the jurisprudence of the corpus juris spatialis, in terms of the pre-eminence of mankind over the advancement of technology. In this light, reasoned jurisprudens spatialis will retain the prominence of the underlying precepts, as the body of law expands. Throughout the Art of Living in Space studies, Latin terminology is utilized in an attempt to describe theoretical abstracts devoid of vernacular connotations which denote positive or negative values. Similarly, the English concepts used must be taken in their pure meaning. The three concepts fundamental to the Art of Living in Space are: fundator terrani, the terrestrial entity founding a space settlement; exinde civitas politicae, the political city-state in space; and imperium regnum regionis, the supreme juridical authority of the region, or home rule.

II. INTERRELATIONSHIPS OF BEING AND THE NATURE OF MAN UT SIC

Between other kinsmen friendly relations are found in due proportion. (6)

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The Art of Living in Space concerns relationships between interested parties involved in man's prospective and imminent extraterrestrial settlement. The primary relationships involved in this space activity are: (1) the settlement itself with the founding or launching entity; (2) the individual person with the founding or launching entity, whether governmental or non-governmental; (3) the individual with local settlement systems of organization and economics; and (4) the individual with individual, both the interaction of the individual settlers and the individual with his or her own being. These interrelationships must coexist harmoniously in the local settlement community and, in a more general sense, in the community of all humankind.

Harmonious coexistence is founded on the concept of justice which, through positive laws (7), serves to promote individual freedom and growth. There is a natural moral law, or "a principle, whose very essence is actuality . . ." (8) which underlies the existence of all that is in esse. Particular things in being thus have an essence of potency (9) and are set in motion by the laws of nature. When such motion continues in accord with nature, a harmony of proportion and balance results. However, when a deviation from the natural order occurs in the continued actualization of potent beings, there is a result of discord in reality. Justice is the term used to denote the harmonious coexistence of all beings, and is most fully realized when beings exist and function in accord with their true nature. Positive laws are the creation of man, and are designed to guide the actions of all persons in order to insure justice in social interaction. Therefore, justice and positive law are both abstract concepts and concrete realities which may be understood in terms of their primary object, man. When humankind moves into space, the positive laws of mundane life will be necessary to insure and maintain harmonious coexistence.

Human beings are intellectual, as well as vegetative and sentient by nature (10); thus they are set apart from other terran life. According to Aristotle, the proper function of man is the activity of the mind (11), and men by nature desire to know. (12) The quest for knowledge of absolute truth, goodness and beauty is an insatiable appetite of the intellect. (13) In fact, it is this appetite that has taken man into the realm of space. However, man's most distinctive characteristic is the capacity of the human mind to exercise intellectual volition. When the intellect clearly ascertains the nature of things, volition can be exercised and result in just actions. However, man's ability to learn, and thus know, is not always complete and accurate. For this reason, human volition may be exercised so as to result in injustice in relation to others. From ancient times, philosophers have held that ". . . it is a characteristic of man

that he alone has any sense of good and evil, or just and unjust . . . and the association of living beings who have this sense makes a family and a state." (14) It is the purpose of positive law and social organization to guide intellectual volition into just action where knowledge is incomplete or choice is mistaken, so as to promote harmonious societal interaction and insure justice for all individuals.

The necessity of positive law in relation to the settlers of a space habitat thus becomes apparent. However, ensocialization and community growth are concepts usually assumed as a "given" insofar as man exists vis-a-vis others. This conclusion follows from the more basic assumption that continuity of daily life is an essential element of happiness and peace of mind in human beings. In the delineation of mankind's social existence, it is a philosophical premise that human beings are essentially gregarious. This premise further extends to the logical result that social interaction and legal systems are natural phenomena. (15) These premises are derived from the facile perception that each individual is blessed with certain inherent talents and abilities, while simultaneously being hindered by limitations and inadequacies. Due to these inherent inadequacies, man cannot flourish and develop in isolation. (16) Thus, individuals voluntarily form communities for their common good, utilizing government management with a regard for their common interest. (17) The result of this communion of individuals is called the body politic, which exists in order that the individuals might merge into mutual complementation and attain full temporal perfection of their beings. Through the activity of conscious reflection, each individual has a freedom of choice in the development of his own humanity. This volition makes each individual responsible for his actions resulting from the exercise of choice. However, just as man is obliged to respect and fulfill his humanity, it follows that he has the natural right of self-realization.

The interrelationships of beings and the nature of man are thus conatural, and the purpose of all social institutions is founded in the promotion of their harmony. It is in this light that space settlement goals must be approached and the four primary relationships must be governed. (18) The condition of harmonious coexistence, between all parties interested in the activity of the settlement, can be organized and institutionally articulated so as to promote justice in all respects. The unique position of a space settlement, in that its social framework will be original ab initio, gives breadth to the possibilities for interrelationships. Thus, the settlers and fundator terrani should act with a view to the good for all humankind in formulating the primary settlement structure.

An early space settlement reasonably

may be expected to grow and evolve through several stages.(19) The extent and pace of maturation will be dependent upon increases in technology, as well as the closely connected ability of the space habitat to become a self-sustaining society.(20) In order to assure the success of the settlement as a whole, together with the well-being of its individual members, smooth evolutionary growth must be enhanced. A flexible societal system which logically adapts as the size, purpose, and structure of the habitat simultaneously change and evolve, would serve this continuity. The settlement population will be more productive as a whole and foster more individual fulfillment when existing in a state of ordered liberty.(21)

The "well rounded" and healthy state must necessarily be comprised of individuals with a wide variety of skills, interests, and educational, occupational and professional training. In addition to this variety of occupations and vocations, a heterogeneous mixture of races, religions and ethnic heritage should be encouraged as a general policy to enhance social and individual growth within the limited settlement structure and population.(22) Thus, the settlement needs a select group of individuals, but not necessarily a select few, as aesthetic fulfillment is seen as a necessary factor in promoting harmony among the space settlers as well as general productivity.(23)

A basic premise underlying the concept of planned settlements in space thus will require a rational selection process, whereby the founding entity will act in accord with the desired heterogeneous result.(24) This focused selection process will contribute to the overall capabilities of the initial settlement and promote harmonious coexistence among the inhabitants. If the selection process were purely self-serving to the founding entity, disharmony among settlers could create political unrest and elite factions within the societal structure.(25) Such a result must be avoided. A rational selection process resulting in a balanced social composition would lessen the likelihood of this occurring in the settlement as change becomes apparent and then pervasive. The frontier of space will provide an excellent opportunity for mankind to plan and implement ideals designed to foster the ultimate in community life. Although many terrestrial cities are currently arising out of the concept of "planned communities"(26), in space the entire social structure can be planned together with the community habitat. In this way, the lessons of history can prevent mistakes of the future, as mankind has an opportunity to literally design an entire way of life.

### III. THE RELATIONSHIP BETWEEN CORPUS JURIS SPATIALIS AND THE EXINDE CIVITAS POLITICAE

A. The Necessity For Limited Home Rule.  
The root of all international law is a

form of social contract, whereby individuals from all nations are bound together for harmonious interaction.(27) The social contract comprising the corpus juris gentium is derived from, and in conformity with, the natural law underlying the existence of all things and beings. The jus gentium thus consists of declarations of natural rights and prescriptions perceived necessary for their observance in the course of human interaction.(28) It is all-pervasive in that it envisions and promotes the common good in the widest sense, namely, for the international community of human beings.(29)

In order to effectuate settlement goals of harmonious coexistence and eventual self-sustenance, the settlement will need an internal organization whereby it achieves autonomy for exclusive jurisdiction and control over certain aspects of its immediate, as well as extended functioning. One fundamental precept of international law provides that a state retains personal jurisdiction over its nationals wherever such persons may be physically present, provided that a 'genuine link' exists between the sovereign and the person.(30) This principle has been incorporated into positive space law and expanded by the Outer Space Treaty, which provides that the state of registration shall retain jurisdiction over "any personnel" of a space object.(31) The personnel may not necessarily be limited to nationals of the state of registry, however. In such an event, the corpus juris spatialis seems to recognize concurrent jurisdiction in both the state of nationality and the state of registry.(32)

It has been said that ". . . the state is a partnership . . . of citizens . . ." (33) In realistic terms, a space settlement will be a new partnership of individuals who will likely come from many nations. Thus, by definition, the settlement will be a new state in that it is a new partnership which ". . . exists for the sake of a good life, and not for the sake of life only." (34) This is the only conclusion possible if a space settlement has purpose toward a continued existence. In order to promote the common good for its members, it must have a political community of its own, which aims not only at present advantage, but at what is advantageous for life as a whole.(35)

The imperium regnum regionis concept, either de lege lata or de lege ferenda, is in conformity with the classical principles underlying the concept of international law, whereby promotion of the common good of the international community as a whole is primary.(36) The political community of the space settlement can originate in several ways, including a general international agreement granting recognition and capacity of limited jurisdiction (IARC), resulting in the imperium regnum regionis. Thus, the exinde civitas politicae will have the power to exercise limited home rule in an application of the concept of functional jurisdiction.(37) This concept

carries with it the implication that there will be a modified form of concurrent jurisdiction in the fundator terrani and the exinde civitas politicae, together with rights and obligations between the space entity, its individual members, and the fundator terrani.(38)

In the settlement context, functions of the exercise of sovereignty by terran states will be implemented by the exinde civitas politicae. Thus, for limited purposes, the exinde civitas politicae will have the nature of a sovereign ens, and its own imperium regnum regionis. Statehood, as the term is commonly used, denotes a legal regime with the following attributes: (1) a permanent population; (2) a territory which it occupies; (3) a form of government; and (4) international capacity, or recognition.(39) The exinde civitas politicae will have attributes satisfying elements (1) and (3), as described above. The requirement of territory would be met in the unique situation of a synthetic ecosphere occupying a particular location in space.(40) Finally, the settlement will be granted recognition and capacity by international convention or agreement (IARC), functionally derived from the corpus juris spatialis.(41) Unrestrained by a declaration of principles or an international agreement granting recognition and capacity to the settlement, any fundator terrani could exploit the settlers and their condition to achieve its own economic advantage. Such exploitation would be in total disregard of humanitarian obligations and responsibilities, as well as the mandates contained in the jus gentium generally, and the corpus juris spatialis in particular.

Several reasons point to the desirability of the exinde civitas politicae exercising functional jurisdiction, apart from the philosophical rationale. The first reason is that present space law leaves a lacuna regarding internal controls within a space habitat. If home rule is to be denied, then the specific internal structure and operation will have to be supplied by another source. This other source could be either (1) by multilateral convention or agreement (42), or (2) by the municipal law directing the activities of the fundator terrani. However, neither of these alternatives is suited to the myriad of conflicts that may arise at the unique local settlement level. While any settlement will have to operate within some international guidelines (43), it is probable that urgent situations will arise that will require resolution more quickly than the international machinery could accommodate.(44)

Notwithstanding the recognition of the terrestrial exercise of jurisdiction over persons in space, it may be questioned whether this exercise of jurisdiction will prove sufficient to cover the multitude of situations that may arise at the local level of a space community.(45)

Rather, it is submitted that the local entity should be granted authority to deal with those situations over which it can exercise jurisdiction more efficaciously than the fundator terrani or other interested terran party.

Strict adherence and limits to Article VIII jurisdiction over the settlement would obviously favor a single interested terran state. Aristotle stated ". . . we do not allow a man to rule, but rational principle, because a man behaves thus in his own interest and becomes a tyrant."(46) In another section he states that ". . . a ruler is necessarily in relation to other men and a member of a society."(47) In this light, it is evident that exclusive Article VIII jurisdiction may not only be inadequate to deal with many local settlement situations, but further may be inherently unjust insofar as the common good of the settlement and its members is concerned. However, where two or more sovereign entities have a legitimate interest in a given situation, a true conflict of laws could arise. The IARC should contain appropriate provisions concerning this conflict.(48)

The fundator terrani is not in a realistic position to effectively administer the mundane operation of the settlement. Traditionally local matters can be handled more efficaciously by the settlers themselves, and the resolution of those conflicts will have a significantly greater effect on the settlement than on the terran ens.(49) While the interests of the fundator terrani and the exinde civitas politicae may overlap, they will not always be congruent.

Conflicts of interest may arise due to divergencies in the growth patterns, policy directions and perceptions of the two entities. Furthermore, the exercise of detached control could conceivably change as the amount of capital infusion to the settlement is increased or decreased by the fundator terrani or other terran ens. Thus, if the fundator terrani or other terrestrial ens asserting an interest were given exclusive control over the settlement, the exercise of that control would necessarily reflect changes in policy and perception of such parties and manifest results far removed from the exercise of that control.(50) However, the continuity of the space entity need not be dependent upon such detached social and political fluctuations, which could cause grave implications in the social and productive lives of the community.

The continuity of settlement existence, maintained as a primary goal for the community, results by considering the exinde civitas politicae like unto another state, with the power to determine its own internal course. In this way, the space entity will be able to embark upon a rational and reasoned existence depending upon its own innumerable changes as well as those of any interested terran ens, rather

than have determinations forced upon it in reaction to terrestrial events. Therefore, as a general principle, the space entity should have separate and distinct control over those traditionally local areas of economic, social and legal concern which will directly affect the proper functioning of the settlement on a daily basis. The imperium regnum regionis will be the pre-eminent authority underlying and relating to the concept of ordered liberty within the exinde civitas politicae.(51)

#### B. The Interaction of Imperium Regnum Regionis With Existing Corpus Juris Spatialis

Basic principles regarding the use of outer space have been accepted by the family of terran nations. These principles have been raised to the status of positive international law by the enactment of four treaties relating specifically to outer space.(52) It will be necessary for these treaty provisions to be respected by any space settlement, in order to promote the universal goals embodied in the corpus juris spatialis and the basic principles underlying the jus gentium in general.

There are two bases supporting the need for a settlement to respect the corpus juris spatialis. The first is that most reasonably foreseeable uses of space will be accomplished by terran states, or otherwise under their national auspices.(53) The states with the most advanced space capabilities are already parties to all of the space treaties. In addition, states party to the Outer Space Treaty, in particular, have thereby agreed to supervise the space activities of their private groups and organizations.(54) In certain circumstances, they have also agreed to become internationally liable therefor.(55) The second basis is that of customary international law. This doctrine states that binding principles of international law can arise out of an international practice, commonly accepted by the community of nations.(56) Thus, the salient features of the corpus juris spatialis can become binding on all nations in this way, whether signatories to the space treaties or not.(57) Applications of this doctrine to particular circumstances may, however, present complicated questions in practical situations. Nevertheless, certain principles of space law have been unanimously accepted as statements of international sentiment (58), and it is therefore reasonable to expect that a settlement will be obliged to conduct its activities in conformity with certain aspects of the corpus juris spatialis in light of the customary international law.

One of these binding principles of international practice involves the prohibition of national appropriation of outer space, including the moon and other celestial bodies.(59) National appropriation is potentially the result of the following uses of space resources:

maintenance of life and life-support, construction of facilities, sale of products manufactured therefrom, or the occupation of a particular location in space.(60) There are many open questions regarding sovereignty which remain in need of resolution.(61) However, for present purposes, this discussion will be limited to a determination of how the ban on appropriation will affect the imperium regnum regionis. Two questions are pertinent ab initio. The first involves the settlement's ability to claim the facility as its own exclusive property. The second quere concerns the settlement's ability, if any, to sell products manufactured wholly or partially from space resources.(62)

The determination of appropriation, in regard to the settlement facility, may be dependent upon the source of the materials used in constructing the facility. If the resources were solely terrestrial, their placement in space should not, by virtue of that circumstance alone, compel a determination that the launching or registration state relinquish all rights of ownership in those resources. The corpus juris spatialis prohibits national "appropriation," a term which connotes a taking or acquiring of something anew.(63) Thus, the mere placement of terran resources in space would not fall within the definition of appropriation. Furthermore, the space treaties call for the terran state to retain jurisdiction over its space "objects," and the component parts thereof.(64) If the payloads of terran resources are not considered to be component parts of the space object, the completed facility would certainly be considered such an object, even though assembled in space.(65) It should be noted, however, that while the exercise of such jurisdiction resembles traditional acts of sovereignty, it is in accord with the non-appropriation provisions of Article II.(66)

At the other extreme lies the situation whereby the settlement facility would be composed solely of space resources. In light of Article II, this situation could result in the conclusion that impermissible appropriation would have occurred. However, this conclusion is premature and does not necessarily follow from the space treaties. Upon further analysis, the imperium regnum regionis concept is functionally consistent with the fundamental principles of the corpus juris spatialis.

Present obligations of the corpus juris spatialis include the requirement that activities in space are to be conducted for the benefit and interest of all mankind.(67) In addition, the Draft Moon Treaty declares that the moon and celestial bodies are part of the common heritage of all mankind.(68) By observing this obligation of conduct, the exinde civitas politicae would be functionally consistent with the philosophical goals of its inception, and would not derive

exclusive benefits from the use of space resources. This factor may be the most critical.(69) These principles of the corpus juris spatialis, in pari materia, will permit the use of space resources by an internationally recognized entity, subject to reasonable, internationally justified limitations.(70)

The exinde civitas politicae will exist under the authority of the imperium regnum regionis. This latter concept is functionally derived from the corpus juris spatialis specifically, and the ius gentium, in general. As such, the sovereign settlement will not present an appropriation problem, as it cannot appropriate, by definition of its own existence. Establishment of the exinde civitas politicae by the IARC would grant international capacity and recognition to the settlement community, and would also clarify that recognition in terms of the corpus juris spatialis.(71) Thus, although the exinde civitas politicae could be denied the right to own a facility built from the space resources, the right of use and control of the facility would be granted, consistent with existing space law.(72)

The IARC could also resolve the second *quaere* relating to impermissible appropriation, that is, the settlement's ability to engage in the trade of products manufactured from space resources. Cost effectiveness is considered to be a pre-requisite to the establishment of a settlement. Both the exinde civitas politicae and fundator terrani can receive compensation for their respective expenditures, of contribution of labor and capital investment, without violating Article II. However, the IARC should include appropriate provisions to regulate against the economic exploitation of space resources themselves, thus denying compensation for their intrinsic value. Furthermore, as an equitable principle, the fundator terrani should receive principal and income from its capital investment, in return for the risk it has assumed.

Similarly, the settlement should receive compensation for the services of its citizens and resident aliens that are rendered. Such compensation for the settlement is necessary to give the exinde civitas politicae the wherewithal to conduct effective relations with terran states and other settlements in its non-discriminatory economic intercourse, which may include tourism as well as products and services.(73) Economic intercourse will, in turn, provide the settlement with capabilities to achieve some measure of self-sustenance and self-generation, without violating the non-appropriation principle.

The exinde civitas politicae will have further obligations imposed by the corpus juris spatialis. Examples of these obligations are the prohibitions concerning the introduction of weapons of mass destruction in outer space (74), and conducting harmful activities on celestial bodies.(75)

Included also are the obligations to render aid to and rescue distressed astronauts.(76) Furthermore, there is the requirement of international liability for space activities, expressed in Articles IX.2 and XI.3 of the Draft Moon Treaty. The exinde civitas politicae is philosophically designed to have effective and harmonious relations with earth. Respect for these provisions will enhance settlement goals and contribute to the mutual beneficial intercourse between the settlement and the global community. Thus, the exinde civitas politicae should be allowed to exercise its recognized autonomy under the IARC, so as to implement its philosophy and enhance the spirit of the corpus juris spatialis.

The harmonious relationship between the corpus juris spatialis and the exinde civitas politicae has been shown to be consistent with, and in promotion of, the legal and philosophical goals of the corpus juris gentium. Having examined the relationship and interaction of the imperium regnum regionis with the existing corpus juris spatialis, the exclusive juridical competence of the exinde civitas politicae will briefly be described and analyzed.

#### IV. THE NATURE OF THE IMPERIUM REGNUM REGIONIS AS LOCAL LAW

. . . justice is often thought to be the greatest of virtues and 'neither evening nor morning star' is so wonderful . . . (77)

The concept of ordered liberty is an ideal which has been recognized by mankind and sought as a possible condition for society.(78) As the term is used herein, ordered liberty remains an ideal toward which the settlement will strive. It entails inherent rights and the resultant obligations to others which are in esse by virtue of humanity. Social interaction requires order such that the unity of persons might work toward the common good. Thus, it follows that in order to flourish in their own humanity, man must govern as well as be governed.

Authority is the right to command and govern justly for the sake of the common good. Each man possesses authority to govern his own life, and in social interaction this authority is delegated to others in the interest of social harmony. True authority must mandate only that which is intrinsically just. This is the basis for the concept of ordered liberty which requires the promulgation of laws in strict accordance with the promotion of natural human rights and obligations. In the social setting, then, man's inherent right to govern himself is construed to rulers whose just order must be respected. The legal system is thus a principle agent by which the common good is attained in society, through virtue and actions in accord with the exercise of legitimate authority.

The judicial system will be equitable, rather than strictly legal, in that it will seek to maintain justice and correct injustice rather than act as a body which merely recites and construes legal enactments. From the basic concept of ordered liberty, the settlement will seek proportionate and distributive justice. Proportionate justice concerns the fact that each human being is endowed with and ensured protection of the inalienable rights inherent in his being.(79) These include the right to a life of dignity and an equal opportunity to pursue one's realization of potential.(80) Distributive justice denominates the right of each human being to an equal condition as co-heir of the effort of all members of the community.(81) This right entails, further, the condition whereby each person shares equally in material and spiritual goods of community life, and to be assured the restoration of such condition should the equilibrium become unbalanced.(82)

The concept of human rights is founded upon the recognition of humanity and the participation of all individuals therein. The human individual's right to achieve self-realization implies a certain freedom for individual growth. However, when rightly discerned, freedom is not absolute. It must be exercised in the context of universal humanity and the obligations which result therefrom. It is the sole purpose of the legal institution to insure and promote justice in social interaction. Thus, just legislation is limited in its scope to protect individual rights.(83) The laws of men cannot determine what is true, good, and beautiful, but rather they must answer to these a priori. Thus, positive law has no competence in the sphere of morals as it has no power nor authority to rule the nature of man nor the nature of the universe.(84) The legal institution can act justly only within the scope of its proper authority by the promulgation of laws coupled with police action necessary for promotion and enforcement of the common good, in terms of natural human rights and obligations.

## V. CONCLUSION

The future of space exploration presents an immense challenge to all disciplines. Perhaps the most striking enterprise will be the creation of permanent communities in space. As man's technology and understanding increase, this age old dream comes closer to reality. This activity will require an unparalleled analysis in order to adequately and fruitfully implement extraterrestrial settlements. The concept of the exinde civitas politicae is based upon an examination of legal, social and economic factors which will influence the functioning and establishment of the settlement, in terms of the pre-eminent philosophical goal which will enhance both societal and individual fulfillment of potentials. The limitless possibilities for variety of social organization may eventually have application to terran situations, thus bringing the fruits of space exploration back to earth and serving the benefit of all humankind. This study has set forth but one alternative that may be within the principles of international law, and space law, in particular. It is the purpose of this discussion to contribute to the dialogue of this most promising venture.

## FOOTNOTES

1. P. SOLERI, ARCOLOGY: THE CITY IN THE IMAGE OF MAN 12 (1973).
2. See Asimov, Next Frontier?, in 150 NATIONAL GEOGRAPHIC 76 (July, 1976); see generally THE SPACE HUMANIZATION SERIES (T. S. CHESTON & D. C. WEBB eds. 1979); G. K. O'NEILL, THE HIGH FRONTIER (1977)
3. The corpus juris spatialis, as compared to the traditional body of international law, has generally preceded advancements in technology. See Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, G. A. Res. 1962 (XVIII), 18 U.N. GAOR Supp. 15, at 15, U.N. Doc. A/5515 (1963); E. FASAN, METALAW: RELATIONS WITH ALIEN INTELLIGENCES (1970); Robinson, Space Law - Earth Law: Recognizing and Accepting the Distinction, 19th COLLOQUIUM ON THE LAW OF OUTER SPACE 79 (1976).
4. The term 'arcology' is a compound formed from architecture and ecology. First used by Paulo Soleri, the term denotes a man-made habitat which is designed to foster and enhance actualization of the individuals' and society's potentials. See generally Soleri, supra note 1. As such, the term is uniquely suited to describe the type of space habitat envisioned in this study.

5. One problem with several projections concerning space settlement is that broad and sweeping generalizations are asserted, such as: (1) the unwillingness of individual settlers to emigrate, and thereby suffer a loss of juridical privileges and immunities; (2) the ease of achieving cost effectiveness; and (3) the foregone conclusion that a space habitat will be a re-creation of earth in miniature form.

6. ARISTOTLE, *ETHICA NICHOMACHEA*, Bk. VIII: Ch. 12, § 1162a (W. Ross trans.) in *INTRODUCTION TO ARISTOTLE* (R. McKEON ed. 1947).

7. D. RUNES, *DICTIONARY OF PHILOSOPHY* 243 (1972). Positive law is defined as that law which is actually valid in a specific jurisdiction at a specific time. Police action is the implementation of positive law by the state. But see R. NOZICK, *ANARCHY, STATE, AND UTOPIA* (1974); J. RAWLS, *A THEORY OF JUSTICE* (1971); R. WOLFF, *IN DEFENSE OF ANARCHISM* (1970). See generally Symposium: Robert Nozick's Anarchy, State, and Utopia, 19 *ARIZ. L. REV.* (1977).

8. ARISTOTLE, *METAPHYSICA*, Bk. XII: Ch. 6, § 1071b (W. Ross trans.) in *INTRODUCTION TO ARISTOTLE* (R. McKEON ed. 1947).

9. Id.

10. ARISTOTLE, *ON THE SOUL* (W. Hett trans. 1936); ARISTOTLE, *DE ANIMA* (J. Smith trans.) in *INTRODUCTION TO ARISTOTLE* (R. McKEON ed. 1947). See also J. OWENS, *THE DOCTRINE OF BEING IN THE ARISTOTELIAN METAPHYSICS* (1951).

11. See generally, Aristotle, *Ethica*, supra note 6, at Bks. I, II.

12. Aristotle, *Metaphysica*, supra note 8, at Bk. I: Ch. 1, § 980a.

13. Plato devoted his entire work of the Republic to illustrate this proposition. See PLATO, *REPUBLIC* (A. BLOOM trans. 1968); PLATO, *REPUBLIC* (F. CORNFORD trans. 1941).

14. ARISTOTLE, *POLITICA*, at Bk. I: Ch. 2, § 1253a (R. McKEON ed. 1947).

15. See id., at Bk. I: Ch. 2, § 1253a ("... it is evident . . . that man is by nature a political animal . . .").

16. See generally id.

17. See id., at Bk. III: Ch. 6, § 1279a; see generally PLATO, *REPUBLIC*, at Bk. IV (A. BLOOM trans. 1968).

18. See text and notes 6-7, supra.

19. See Glazer, Domicile and Industry in Outer Space, 17 *COLUM. J. TRANSNAT'L L.* 67, 101-103 (1978).

20. See generally Soleri, supra note 1. See also Falk, New Options for Self-Government in Space Habitats, in 2 *SPACE MANUFACTURING FACILITIES (SPACE COLONIES)* 181, 182 (J. GREY ed. 1977).

21. See text and notes 77-84, infra.

22. See Shurley, Natani & Sengel, Ecopsychiatric Aspects of a First Human Space Colony, in 1 *SPACE MANUFACTURING FACILITIES (SPACE COLONIES)* 259, 264, (J. GREY ed. 1977). But see Falk, supra note 20, at 184.

23. The inclusion of additional members to meet this requirement would both promote the desired general sense of well being, but also present a host of additional problems. It has been postulated that "each particular habitat should be used to evolve as far as possible a special human dimension, whether it be culture or science or medicine or sports or whatever." Falk, supra note 20, at 184. In other words, a single purpose settlement, with a limited homogeneous population, is envisioned. It would appear that such a course of action would create discord and individual dissatisfaction because of a deprivation of social variety.

24. See Shurley, supra note 22, at 261 (proposing the creation of a National Solar Energy Corps).

25. See generally Aristotle, *Politica*, supra note 14, at Bk. III: Ch. 3.

26. See, e.g., Sun City, Arizona U.S.A.; and Paulo Soleri's experimental Arcosanti, east of Mayer, Arizona U.S.A.

27. Laslett, Social Contract, in 7 ENCYCLOPEDIA OF PHILOSOPHY 465-66 (P. EDWARDS ed. 1967). As used herein, the term 'social contract' is not to be misconstrued as the social contract theory expounded by Rousseau. Although nations have come to establish a body of law through agreement to promote and maintain their harmonious coexistence, it is not necessarily the result of having to alter any natural war-like nature. Rather, the nature of man is not perceived as inherently evil, nor is the social state which arises from the aggregate of men. However, due to man's volitional capacity and imperfect knowledge, disharmony among nations can and does occur. Thus, the agreement of nations, known as the corpus juris gentium, has arisen to enhance and maintain harmonious coexistence between individuals and nations, rather than to contrive a state of such as Rousseau incorrectly perceived.

28. See, e.g., Universal Declarations of Human Rights, G. A. Res. 217 (III) (A), U.N. Doc. A/810 (1948).

29. Golding, Philosophy of Law, in 6 ENCYCLOPEDIA OF PHILOSOPHY 258 (P. EDWARDS ed. 1967) (setting forth the philosophy of international law according to Francisco de Victoria, a Spanish Thomist, to the effect that all corpus juris gentium concerns the good of the entire international community, making guidelines therefor obligatory as well as desirable). Cf. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, opened for signature January 27, 1967, art. I, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter referred to as Outer Space Treaty]; Committee on Peaceful Uses of Outer Space, Report 28 U.N. GAOR Supp. 20, at 25, U.N. Doc. A/9020 (1973) (text of Draft Treaty Relating to the Moon, at art. X.4) [hereinafter referred to as Draft Moon Treaty]. See also text and notes 7-17, supra.

30. Nottebohm Case (Second Phase) [1955] I.C.J. 4.

31. Outer Space Treaty, supra note 29, at art. VIII.

32. I. A. CSABAFI, THE CONCEPT OF STATE JURISDICTION IN INTERNATIONAL SPACE LAW 69 (1971).

33. Aristotle, Politica, supra note 14, at Bk. III: Ch. 3, § 1276b. See generally, Plato, Republic, supra note 17.

34. Id., at Bk. VIII: Ch. 9, § 1280a.

35. See Aristotle, Ethica, supra note 6, at Bk. VIII: Ch. 9, § 1160a.

36. See generally Golding, supra note 29.

37. See Csabafi, supra note 32, at 64.

38. See Sterns & Tennen, The Art of Living in Space: A Preliminary Study, XXist COLLOQUIUM ON THE LAW OF OUTER SPACE at text and notes 116-17 (1978).

39. M. M. WHITEMAN, 1 DIGEST OF INTERNATIONAL LAW 233 (1968).

40. But see Csabafi, supra note 32, at 69 (since sovereignty is based on nationality, the requirement of territory becomes irrelevant).

41. See id., at 50-51; Glazer, supra note 19, at 110. Cf. United Nations Charter, opened for signature October 24, 1945, arts. 104, 105, 59 Stat. 1031, T.S. 993, 3 Bevans 1153. See also text and notes 36-38, supra.

42. Several different types of international agreements may supply the local law of the exinde civitas politicae, e.g., agreements by a regional ens, such as the European Space Agency (ESA); a United Nations General Assembly Resolution, possibly drafted by the United Nations Committee on Peaceful Uses of Outer Space (COPUOS); or an agreement relating to a specific space settlement, i.e., the international agreement of recognition and capacity (IARC), as envisioned here. The municipal law and capacity may also be supplied by a future international space agency. For proposals of such agencies, see, e.g., Berlin & Tennen, The Role of the United Nations in the Colonization of Outer Space, or Chicken Little Was Right, 19th COLLOQUIUM ON THE LAW OF OUTER SPACE 215 (1976); Gorove, Proposal for the Establishment and Operation of a World Cosmic Law Center, 12 N.Y.L.F. 275 (1966); John R. Tamm, The Outer Space Treaty: Interpretation and Implementation, May, 1970 (dissertation presented to Institute of Air and Space Law, McGill University).

43. See, e.g., Outer Space Treaty, supra note 29, at art. I (sharing of benefits); id., at art. II (prohibition of national appropriation); Draft Moon Treaty, supra note 29, at art. X.4 (common heritage of mankind). See also text and notes 52-76, infra.

44. Cf. Chen, Pending Issues Before the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, 5 J. SPACE, L. 29 (1978) (impasse of negotiations in COPUOS delaying the resolution of the Draft Moon, Direct Broadcasting and Remote Sensing treaties).

45. See Shurley, supra note 22, at 259 (listing three major categories of aberrant behavior envisioned as potential deviations from the societal norms of a space habitat).

46. Aristotle, Ethica, supra note 6, at Bk. V: Ch. 6, § 1134a; Plato, Republic, supra note 17, at Bk. I: § 342e.

47. Aristotle, Ethica, supra note 6, at Bk. V: Ch. 1, § 1130a (emphasis added). See Plato, Republic, supra note 17, at Bk. I: 347b-347e. See also Sterns & Tennen, Preliminary Study, supra note 38, at text and notes 75-82.

48. See generally, B. CURRIE, SELECTED ESSAYS ON THE CONFLICT OF LAWS (1963).

49. Cf. Az. Const., art. XIII, § 2 (authorizing home rule).

50. See generally M. McDOUGAL, H. LASSWELL, & I. VLASIC, LAW AND PUBLIC ORDER IN SPACE 99-100 (1964) (discussion of the various terran parties with potential interests in a particular settlement).

51. See text and notes 77-84, infra.

52. See generally Outer Space Treaty, supra note 29; Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, opened for signature April 22, 1968, 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119 [hereinafter referred to as Return and Rescue Agreement]; Convention on International Liability for Damages Caused by Space Objects, opened for signature March 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762, \_\_\_ U.N.T.S. \_\_\_ [hereinafter referred to as Liability Convention]; Convention on Registration of Objects Launched into Outer Space, opened for signature January 14, 1975, \_\_\_ U.S.T. \_\_\_, T.I.A.S. No. 8480, \_\_\_ U.N.T.S. \_\_\_ [hereinafter referred to as Registration Convention].

53. For a discussion of non-state participants in the use of outer space, see Diederiks-Verschoor & Gormley, The Future Legal Status of Non-governmental Entities in Outer Space: Private Individuals and Companies as Subjects and Beneficiaries of International Space Law, 5 J. SPACE L. 125 (1978).

54. Outer Space Treaty, supra note 29, at art. VI.

55. Liability Convention, supra note 52, at art. I(c).

56. C. FENWICK, INTERNATIONAL LAW 88-94 (3d ed. 1965).

57. See generally Goedhuis, Influence of the Concept of Outer Space on National Sovereignty: Some Observations, 6 J. SPACE L. 37 (1978).

58. See, e.g., G. A. Res. 1962 (XVIII), supra note 3.

59. This principle has been stated and incorporated into declarations of international practice. See, e.g., id., at 3; Outer Space Treaty, supra note 29, at art. II.

60. See, e.g., Declaration of the First Meeting of the Equatorial Countries, Bogota, Columbia, December 4, 1976 (claiming the portion of the geostationary arc of the equatorial plane as the sovereign territory of the underlying terran state).

61. See generally Gorove, Sovereign Rights in Outer Space, XXth COLLOQUIUM ON THE LAW OF OUTER SPACE 244 (1977); Haanappel, Article II of the Outer Space Treaty and the Status of the Geostationary Orbit, XXIst COLLOQUIUM ON THE LAW OF OUTER SPACE \_\_\_ (1978); Wolcott, Sovereignty and Outer Space: Spatial Illusions?, XXth COLLOQUIUM ON THE LAW OF OUTER SPACE 486 (1977).

62. A distinction may be drawn between products manufactured from space resources themselves, and items produced by machines made of space resources. These latter items may or may not be dependent upon other space resources, such as: electricity from solar power satellites, or pharmaceutical products fabricated in space.

63. The word "appropriate" is defined as "to take to or for oneself; take possession of." The Random House College Dictionary (1975).

64. Outer Space Treaty, supra note 29, at art. VIII.

65. Id.
66. S. GOROVE, Criminal Jurisdiction in Outer Space, in SPACE LAW: ITS CHALLENGES AND PROSPECTS 141, 144 (1977).
67. Outer Space Treaty, supra note 29, at art. I.
68. Draft Moon Treaty, supra note 29, at art. X.1.
69. See Brooks, Control and Use of Planetary Resources, XIth COLLOQUIUM ON THE LAW OF OUTER SPACE 339, 346 (1968).
70. See generally Sterns & Tennen, Local Concerns and the Art of Living In Space: An International Legal Regime, XXIIInd COLLOQUIUM ON THE LAW OF OUTER SPACE \_\_\_\_ (1979).
71. Id.
72. See N. PAPADAKIS, THE INTERNATIONAL LEGAL REGIME OF ARTIFICIAL ISLANDS 106 (1977). The concept of control and use implies the exercise of sovereign jurisdiction. See Gorove, Criminal Jurisdiction, supra note 66, at 144. But see Space Colonies and the Law, 110 SCIENCE NEWS 298 (1976) (statement by Gorove); Tennen, International Law and the Use of Outer Space for the Production of Solar Power, XXth COLLOQUIUM ON THE LAW OF OUTER SPACE 456, 461 (1977).
73. Even though "large" populations, such as 10,000 people, are envisioned, it is doubtful that such a limited workforce could produce all the varied commodities necessary for their daily functioning and existence. Therefore, imports from earth are likely to be a continuing reality for several stages of the settlement's growth.
74. Outer Space Treaty, supra note 29, at art. III.
75. Id., at art. IX.
76. Return and Rescue Agreement, supra note 52, at arts. II, III.
77. Aristotle, Ethica, supra note 6, at Bk. V: Ch. 1, § 1129b.
78. See Palko v. Connecticut, 302 U.S. 319, 58 S. Ct. 149, 82 L. Ed. 288 (1937) (construing the U.S. Constitution, the Bill of Rights, and the 14th Amendment).
79. See Universal Declaration of Human Rights, supra note 28, at art. 2; see generally, Aristotle, Ethica, supra note 6; Aristotle, Politica, supra note 14.
80. See Universal Declaration of Human Rights, supra note 28, at arts. 1, 26; see generally Aristotle, Ethica, supra note 6, at Bk. VI.
81. See Universal Declaration of Human Rights, supra note 28, at art. 25; Aristotle, Politica, supra note 14, at Bk. III; Ch. 3, § 1276b.
82. See Universal Declaration of Human Rights, supra note 28, at arts. 27, 29; Aristotle, Politica, supra note 14, at Bk. III: Ch. 3, § 1276b. See also Plato, Republic, supra note 17 (Plato notes that the ideal life in the Republic can fail due to human error and imbalance).
83. For a collection of philosophical arguments concerning this proposition, see generally R. NOZICK, ANARCHY, STATE AND, UTOPIA (1974).
84. A. P. d'ENTREVES, NATURAL LAW 84-85 (1970). "Ubi societas ibi ius. Law presupposes society. Morals do not. Moral experience is essentially a matter for the individual. Legal experience is tied to the notion of a community." Id., at 84.