

# SPACEDWELLING FAMILIES: THE PROJECTED APPLICATION OF FAMILY LAW IN ARTIFICIAL SPACE LIVING ENVIRONMENTS\*

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## I. INTRODUCTION

The earliest stage of human exploration of space involved space flight—a single encapsulated astronaut launched by missile into space, circling the Earth for a matter of hours.<sup>1</sup> During the second stage, improved technology made possible space travel—journeys, from Earth to the Moon or to an orbiting artificial environment such as Skylab—by teams of humans for days or even weeks at a time.<sup>2</sup>

The logical next step will be the construction of additional artificial living environments, of varying sizes and locations, to facilitate research and development, and eventually, permanent settlement in space.<sup>3</sup> The human beings who will occupy these environments will be neither pilots briefly testing a space capsule, nor scientists performing a series of tests for a few days in a cramped, orbiting laboratory. They will be living in space; they will be literally “at home” there.

Most of the literature on law and space exploration has addressed only the problems generated by the first two stages. Reflecting the brief and temporary nature of space flight and early space

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<sup>1</sup> For a history of the early U.S. space program, see M. CARPENTER, L. COOPER, J. GLENN, V. GRISSOM, W. SCHIRRA, A. SHEPARD & D. SLAYTON, *WE SEVEN: BY THE MERCURY ASTRONAUTS* (1963).

<sup>2</sup> See generally NASA, *APOLLO EXPEDITIONS TO THE MOON* (1975) [hereinafter cited as *APOLLO EXPEDITIONS*]. For one space traveler's experience, see M. COLLINS, *CARRYING THE FIRE: AN ASTRONAUT'S JOURNEY* (1974).

<sup>3</sup> See S. GOROVE, *STUDIES IN SPACE LAW: ITS CHALLENGES AND PROSPECTS* 141-51, 213-20 (1977) (discussing problems of space law jurisdiction); *infra* text accompanying notes 81-83.

travel, that literature has predictably drawn from such analogous areas as aviation and admiralty law.<sup>4</sup> Only very recently have commentators begun to consider legal questions deriving from—and possibly unique to—the experience of human beings living in space.<sup>5</sup>

Of course, in a very real sense, human beings already live “in space”: that is, we inhabit a natural satellite circling a star—both of these natural bodies traveling through space.<sup>6</sup> The living environment of the planet Earth has shaped both the physical and the psychological nature of mankind.<sup>7</sup> We evolved on Earth and so we are “at home” here. It is difficult to image how different we would be if “home” were a totally different environment, even an artificial one created entirely by human beings. Since all the variations of human behavior observed in different cultures have developed within the same planetary environment,<sup>8</sup> they may not be reliable guides for predicting the effect an artificial living environment in space will

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<sup>4</sup> See, e.g., DeSaussure, *Toward a Law for Space Transport, The Maritime Analogy*, 14 LINCOLN L. REV. 1 (1983) (describing extent to which maritime rules and air regulations are applicable to carriage of goods in space); DeSaussure, *Maritime and Space Law, Comparisons and Contrasts (An Oceanic View of Space Transport)*, 9 J. SPACE L. 93 (1981) (advocating maritime law as model for space law); Williams, *The Law of the Sea: A Parallel for Space Law*, 22 MIL. L. REV. 155 (1963) (same).

<sup>5</sup> See, e.g., Glazer, *Domicile and Industry in Outer Space*, 17 COLUM. J. TRANSNAT'L L. 67, 67 (1978) (“The imminent political and economic exploitation of the outer space segment of transnational space presents a major and tangible challenge to contemporary national and international law-makers.”); Gorove, *Criminal Jurisdiction in Outer Space*, 6 INT'L LAW. 313, 313 (1972) (“[A] number of problems of criminal jurisdiction may arise which will have to be tackled by lawyers if man's activities in space are to take place in an orderly manner and with a minimum of friction.”); Robinson, *Homo Spatialis: A Space Law Dilemma*, PROC. OF THE TWENTY-SECOND COLLOQUIUM ON THE L. OF OUTER SPACE 195 (1979).

<sup>6</sup> An awareness that human beings have always been space travelers and spacedwellers is implied in the title of R. BUCKMINSTER FULLER'S OPERATING MANUAL FOR SPACESHIP EARTH (1969).

<sup>7</sup> For general analyses of human biological, social, and psychological evolution, see D. BARASH, *THE WHISPERINGS WITHIN: EVOLUTION AND THE ORIGIN OF HUMAN BEHAVIOR* (1979); S. GOULD, *THE PANDA'S THUMB: MORE REFLECTIONS IN NATURAL HISTORY* (1982); M. KONNER, *THE TANGLED WING: BIOLOGICAL CONSTRAINTS ON THE HUMAN SPIRIT* (1983); D. MORRIS, *THE NAKED APE: A ZOOLOGIST'S STUDY OF THE HUMAN ANIMAL* (1979). Commentaries specifically concerning the evolution of the human female include S. HRDY, *THE WOMAN THAT NEVER EVOLVED* (1981), and M. NOWAK, *EVE'S RIB* (1980). Barash and Hrdy use a sociobiological approach rather than a traditional, anthropological one.

<sup>8</sup> See S. HRDY, *supra* note 7, at 160-88; M. KONNER, *supra* note 7, at 379-406. Anthropologists and psychologists have observed both wide variations and surprising consistencies in the behavior of human beings in different cultures and at different stages in our history. The argument has been advanced that *homo sapiens* will be changed by space exploration and colonization, “for we will have opened the door for our accelerated evolution.” Finney & Jones, *From Africa to the Stars: The Evolution of the Exploring Animal*, 53 ADVANCES IN THE ASTRONAUTICAL SCI. 85, 85, 96-101 (1982).

have on human behavior.<sup>9</sup>

Thus, it is concededly difficult, if not impossible, to envision the legal problems of a human society so far in the future.<sup>10</sup> Yet it is relatively easy to identify the general categories of conflict among human beings on Earth that require legal, or quasi-legal, solutions:<sup>11</sup> behavior which violates the rule or will of the governing body (criminal law); disputes over the distribution of a deceased person's property or the carrying out of the decedent's requests (probate law); and disputes concerning the status, responsibilities, and rights of individuals within a family unit (family law).

We may thus assume that at least the first generation of human beings who leave Earth to live in space will take with them a need for criminal law, probate, and family law. At a minimum, they will also take with them not only certain concepts of Earth life, including "family," but also the experience of life within a society where the state both defines and regulates the family relationship.<sup>12</sup>

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<sup>9</sup> At least one commentator has acknowledged this dilemma by distinguishing the early astronauts and space travelers from "spacekind," or human beings who are fully adapted to life in space. See Robinson, *supra* note 5, at 29 n.10. Spacekind refers to "individuals who are living and functioning primarily under the influence of a totally synthetic and alien life-support environment in near and deep space." *Id.* Earthkind denominates individuals who function "on Earth's surface under normal and familiar cultural influences and biophysical dictates associated with sea-level solar radiation." *Id.*

<sup>10</sup> At least initially, the nation that sends human beings to live in space may have to bear the responsibility for structuring both a government and a legal system that will contribute to successful adaptation to space. For a discussion of the legal responsibility of the nation of origin, see *infra* note 12 and accompanying text. See also J. STEWART, JR., *EMERGING PATTERNS OF A PRIVATE INTERNATIONAL SPACE LAW REGIME—EVOLUTIONARY OR REVOLUTIONARY?* (1980) (preprint no. 80-S1-43) (available from American Institute of Aeronautics and Astronautics), which states that

[t]he need to identify space objects and space shuttles by country of registration may loom even larger as the private entrepreneur begins to operate in outer space. The question of births, deaths, marriages and other events effecting upon private rights of individuals have been dealt with to a greater or lesser degree in the maritime and aviation environments and will undoubtedly have to be addressed in the space environment.

*Id.* at 4-5. For a proposed international approach to the creation of substantive law governing activities in outer space, see DeSaussure, *An Integrated Legal System For Space*, 6 J. SPACE L. 179, 191-92 (1978).

<sup>11</sup> Commentators tend to agree on the persistence of disputes in space, but not on the need for lawyers to resolve them. Compare Robinson, *Space Lawyering: An Unusual Business*, 54 FLA. B.J. 58 (1980) (discussing different types of law in space and role of space lawyer) and Shurkin, *These Attorneys Will Settle Disputes Light-Years Away From Any Court*, CAL. LAW., Feb. 1982, at 30 (describing training of space lawyers) with Sloup, *Should Lawyers Be Allowed in Space—T/S Golden Bear May Suggest An Answer*, PROC. OF THE TWENTY-FOURTH COLLOQUIUM OF THE L. OF OUTER SPACE 219 (1982) (sponsored by the International Institute of Space Law of the International Astronautical Federation) (lawyers in space must possess non-law-related skills).

<sup>12</sup> I assume that these spacedwellers will come from one or more nations with the

Of course, the kind of family law that spacedwellers will need depends on the nature of the "family" they develop. The successful development of a family law system for human beings living in space will depend upon the answers to the following questions: (1) As human beings learn to live in space, will their sexual and parent-child relationships be altered by that adaptive process; (2) Will existing family law as developed in the United States be adequate to respond to those changes; and (3) What role can or should the governing entity of the artificial living environment play in developing or modifying family law to reflect those changes. This article will explore those issues in the context of three foreseeable types of "space living" environments—"short-term," "temporary," and "permanent."<sup>13</sup>

In order to discuss the extent to which family law will be necessary to a community of spacedwellers, we must determine its role in an Earth society. Therefore, this article will first analyze the present function of family law in the United States.<sup>14</sup> Next the article will examine existing plans for long-term space travel and settlements, and will identify family law issues unique to or influenced by space living environments. A judgment that existing family law will prove inadequate in such environments will be followed by recommendations to adapt present law to short-term and temporary space living.

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technology and high degree of social organization necessary to develop a space settlement program. For the purposes of this article, the spacedwellers discussed will be either United States citizens or citizens of a nation working cooperatively with the United States in developing a space settlement. The first space settlements are likely to be registered by one or more nations of Earth consistent with the provisions of United Nations treaties. The primary international treaty governing space exploration is the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205.

Consistent with the provisions of this treaty, space settlements may be considered as falling under the legal jurisdiction of the registering nation. That provision, in pertinent part, declares that "[a] State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body." *Id.* art. VIII, 18 U.S.T. at 2416, 610 U.N.T.S. at 209.

The extent to which settlements will be self-governing and the form their governments will assume is presently unclear. *Cf.* Glazer, *supra* note 5, at 71 n.17 (arguing that grant of sovereignty to space community would violate established principles of international law).

<sup>13</sup> For definitions of these terms, see *infra* text accompanying notes 81-83.

<sup>14</sup> This section includes a brief discussion of existing methods of resolving family law issues where there is no clear family domicile or an apparent conflict between jurisdictions. Arguably, the most analogous situation is that faced by military personnel. See Fiore, *Absence of Domicile in Military Divorces: Full Faith and Due Process Requirements*, 102 *MIL. L. REV.* 51, 52 (1983).

Finally, the article will set out a general approach to resolution of family law issues in the context of a permanent space living environment.

## II. THE PRESENT FUNCTION OF FAMILY LAW IN THE UNITED STATES

### A. Regulation of Sexuality

The United States Constitution protects the fundamental right of privacy,<sup>15</sup> including the right to marry<sup>16</sup> and the right to have—or refrain from having—children.<sup>17</sup> Official recognition and promotion of certain types of sexual relationships deemed beneficial to society,<sup>18</sup> however, has been evinced in the enactment of statutes establishing criteria for marriage.<sup>19</sup> Similarly, government power to punish or discourage sexual relationships deemed undesirable, such as incest<sup>20</sup> or sexual relations with a minor female,<sup>21</sup> has long been upheld.

The primary rationale for governmental involvement in those areas is the state's interest in encouraging procreation under circumstances deemed likely to produce healthy, genetically normal offspring.<sup>22</sup> However, even where there is little or no genetic risk, a

<sup>15</sup> *E.g.*, *Griswold v. Connecticut*, 381 U.S. 479, 485 (1965) (recognizing "zone of privacy created by several fundamental constitutional guarantees").

<sup>16</sup> *Loving v. Virginia*, 388 U.S. 1, 12 (1967) ("Marriage is one of the 'basic civil rights of man,' fundamental to our very existence and survival.") (quoting *Skinner v. Oklahoma ex rel. Williamson*, 316 U.S. 535, 541 (1941)).

<sup>17</sup> *Skinner v. Oklahoma ex rel. Williamson*, 316 U.S. 535, 541 (1942) ("[Procreation is] one of the basic civil rights of man. Marriage and procreation are fundamental to the very existence and survival of the race.").

<sup>18</sup> *See, e.g.*, *Reynolds v. United States*, 98 U.S. 145 (1878) (prosecution of Mormon for polygamy upheld against first amendment challenge); *Adams v. Howerton*, 673 F.2d 1036 (9th Cir.) (refusal of INS to recognize homosexual marriage affirmed), *cert. denied*, 458 U.S. 1111 (1982); *Baker v. Nelson*, 291 Minn. 310, 191 N.W.2d 185 (prohibition on homosexual marriages not violative of equal protection clause), *appeal dismissed*, 409 U.S. 810 (1971); *M.T. v. J.T.*, 140 N.J. Super. 77, 84, 355 A.2d 204, 207 (App. Div. 1976) ("In the matrimonial field the heterosexual union is usually regarded as the only one entitled to legal recognition and public sanction.") (citations omitted); *Singer v. Hara*, 11 Wash. App. 247, 522 P.2d 1187 (1974) (prohibition on homosexual marriages upheld against challenge grounded on state equal rights amendment).

<sup>19</sup> *See, e.g.*, UNIF. MARRIAGE AND DIVORCE ACT § 207(a), 9A U.L.A. 108 (1979) (prescribing prohibited marriages).

<sup>20</sup> *See* MODEL PENAL CODE § 230.2 (1980); *see also id.* § 230.2 commentary at 402-08 (discussing rationales for prohibiting intercourse between closely related individuals).

<sup>21</sup> *See id.* § 213.1(1)(d) (male is guilty of rape if he has sexual intercourse with female under ten years of age); *cf.* *Michael M. v. Superior Court*, 450 U.S. 464 (1981) (California statutory rape statute upheld notwithstanding its gender basis).

<sup>22</sup> All states have statutes prohibiting marriages between persons related by lineal consanguinity and between brother and sister. J. AREEN, FAMILY LAW: CASES AND MATERIALS 10 n.1 (1978); *cf.* UNIF. MARRIAGE AND DIVORCE ACT § 207, 9A U.L.A.

state's power to prohibit marriage and sexual activity between some individuals is upheld because it furthers social stability.<sup>23</sup> Moreover, administrative convenience is served by permitting a state to define and regulate marital and family relations<sup>24</sup> in areas ranging from taxation<sup>25</sup> to eligibility for public benefits.<sup>26</sup>

The extent to which state regulation of family relationships reinforces or reflects moral and religious values is significant. At common law and in the United States well into the twentieth century, the requirements for marriage and the grounds for annulment or divorce generally followed closely the provisions of Roman Catholic or Anglican canon law.<sup>27</sup> In matters such as the minimum age for marriage and the forbidden degrees of consanguinity, state courts have often deferred to long-standing Judeo-Christian tradition.<sup>28</sup> The enforcement of morality through the promotion of the family relationship has been regarded as a legitimate purpose for statutes limiting

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108 (1979) (prohibiting such marriages). Nearly all of those statutes also prohibit the marriage of uncle and niece and of aunt and nephew. J. AREEN, *supra*; e.g., CAL. CIV. CODE § 4400 (Deering 1984); N.Y. DOM. REL. LAW § 5 (McKinney 1977).

<sup>23</sup> See UNIF. MARRIAGE AND DIVORCE ACT § 207 note, 9A U.L.A. 109 (1979) ("Marriages of brothers and sisters by adoption are prohibited because of the social interest in discouraging romantic attachments between such persons even if there is no genetic risk."). For examples of statutes that prohibit marriages between some classes of persons related by affinity, see MASS. GEN. LAWS ANN. §§ 1, 2 (West Cum. Supp. 1984-1985); MISS. CODE ANN. § 93-1-1 (1973).

<sup>24</sup> For a discussion of the constitutionality of such state definitions, see Hafen, *Marriage, Kinship, and Sexual Privacy—Balancing the Individual and Social Interests*, 81 MICH. L. REV. 463 (1983); Karst, *The Freedom of Intimate Associations*, 89 YALE L.J. 624 (1980).

<sup>25</sup> Several provisions in the Internal Revenue Code clearly define and regulate marital and family relations. Section 152, for example, prescribes tests for determining dependency exemptions. I.R.C. § 152 (West 1984); cf. Turpinseed v. Commissioner, 27 T.C. 758 (1957) (denying dependency exemption to taxpayer who engaged in illicit relationship in violation of criminal statute). See generally D. POSIN, *FEDERAL INCOME TAXATION OF INDIVIDUALS AND BASIC CONCEPTS IN THE TAXATION OF ALL ENTITIES* 338-42 (1983).

<sup>26</sup> See, e.g., *Califano v. Boles*, 443 U.S. 282 (1979) (upholding Social Security Act provision restricting mother's benefits to widows and divorced wives); *Califano v. Jobst*, 434 U.S. 47 (1977) (upholding constitutionality of Social Security Act provisions terminating dependent child's benefits upon his marriage). But cf. Comment, *Califano v. Boles: Unequal Protection for Illegitimate Children and Their Mothers*, 9 N.Y.U. REV. L. & SOC. CHANGE 241 (arguing both that *Boles* cannot be reconciled with Court's earlier decisions and that decision fails to comport with constitutionally protected privacy rights).

<sup>27</sup> See C. FOOTE, R.J. LEVY & F.E.A. SANDER, *CASES AND MATERIALS ON FAMILY LAW* 568-70 (2d ed. 1976). See also 1 W. BLACKSTONE, *COMMENTARIES* \*440-42 (discussing common law rules).

<sup>28</sup> See, e.g., *In re May's Estate*, 305 N.Y. 486, 114 N.E.2d 4 (1953). In that case, the court upheld the validity of a marriage between an uncle and a niece, incestuous under New York law, because it had been performed in Rhode Island, where it was valid as conforming to biblical law and Jewish tradition. *Id.* at 491-93, 114 N.E.2d at 6-7.

the inheritance rights of illegitimate children,<sup>29</sup> and for criminal laws punishing homosexuality<sup>30</sup> and certain behavior, such as oral sexual intercourse, between heterosexuals.<sup>31</sup> Further, although few states retain adultery as a criminal offense,<sup>32</sup> the modern trend toward "no fault" divorce has diminished but not eliminated penalties imposed upon the "guilty spouse" in property division and child custody matters.<sup>33</sup>

### *B. Management and Control of Family Property*

It is a familiar contention that the institution of marriage and the concept of "legitimacy" in procreation developed out of a need to protect and maintain private property.<sup>34</sup> Certainly in the United States, although the common law principles of primogeniture do not apply<sup>35</sup> and individual members of family units can and do own property, governments recognize and encourage the purchase and control of private property by families.<sup>36</sup> In determining what con-

<sup>29</sup> See *Labine v. Vincent*, 401 U.S. 538 (1971). In *Labine*, the Supreme Court rejected an equal protection challenge to a Louisiana statute providing that acknowledged but un-legitimated children could not claim the rights of legitimates. *Id.* at 539-40. Justice Black, in his opinion for the Court, observed that "the power to make rules to establish, protect, and strengthen family life. . . is committed by the Constitution of the United States and the people of Louisiana to the legislature of that State." *Id.* at 538; see also *Levy v. Louisiana*, 391 U.S. 68, 80 (1968) (Harlan, J., dissenting) (assuming that "[t]he State has [the] power to provide that people who choose to live together should go through the formalities of marriage and, in default, that people who bear children should acknowledge them"). But see *Trimble v. Gordon*, 430 U.S. 762 (1977) (invalidating statute providing that illegitimate children could inherit from mothers but not fathers). See generally Clark, *Constitutional Protection of the Illegitimate Child*, 12 U.C.D.L. REV. 383, 385-92 (1979) (discussing *Levy*, *Labine*, and *Trimble*).

<sup>30</sup> See *People v. Onofre*, 51 N.Y.2d 476, 497, 415 N.E.2d 936, 945, 434 N.Y.S.2d 947, 956 (1980) (Gabielli, J., dissenting) ("In my view, the so-called 'police powers' of the State must include the right of the State to regulate the moral conduct of its citizens and 'to maintain a decent society.'") (quoting *Jacobellis v. Ohio*, 378 U.S. 184, 199 (1964) (Warren, C.J., dissenting)), cert. denied, 451 U.S. 987 (1981).

<sup>31</sup> See generally Richards, *Unnatural Acts and the Constitutional Right to Privacy: A Moral Theory*, 40 FORDHAM L. REV. 1281, 1292-98 (1977) (discussing historical development of legal prohibitions on sexual deviance including oral intercourse).

<sup>32</sup> See MODEL PENAL CODE art. 213 commentary at 439 & nn. 31 & 32 (1980) (listing states that include adultery as crime, as well as those that do not).

<sup>33</sup> All American states except South Dakota have adopted some form of no-fault divorce law. 1983 *Survey of American Family Law*, 10 FAM. L. REP. (BNA) 3017 (Jan. 17, 1984).

<sup>34</sup> E. JANEWAY, CROSS SECTIONS FROM A DECADE OF CHANGE 167-71 (1982).

<sup>35</sup> For a description of the primogeniture rules that were in force in England until 1925, see C. MOYNIHAN, INTRODUCTION TO THE LAWS OF REAL PROPERTY § 2.6, at 43 n. 9 (1962).

<sup>36</sup> See, e.g., CAL. REV. & TAX CODE § 13801(a) (West Cum. Supp. 1984) (providing substantial tax exemptions for transfer of property by decedent to minor children).

stitutes "community" or "marital" property at the time of dissolution of a marriage,<sup>37</sup> or in interpreting the provisions of a will after death,<sup>38</sup> the state commonly assumes that individuals related by blood or marriage have an interest in acquiring property jointly and preserving title within the family.

To view the family as simply a mechanism for acquiring and passing on private property is, however, too simplistic. During the development of the common law, a majority of married households neither managed extensive real estate holdings nor left estates that included entailed property.<sup>39</sup> Similarly, in the United States today, although many families eventually purchase their own homes, the property acquired and managed within a family is likely to derive from wages and investment income,<sup>40</sup> rather than inheritance. Unquestionably, however, for its individual members, the institution of the family is a means of economic survival. Like a business partnership, the family unit permits its members to pool financial resources and personal skills under one management, traditionally the husband's.<sup>41</sup>

As with a business partnership or corporation, the identification

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<sup>37</sup> See generally W. McCLANAHAN, COMMUNITY PROPERTY LAW IN THE UNITED STATES § 12.5, at 531 (1982) (upon dissolution of marriage, each spouse entitled to present, undivided interest in one-half of community property); Krauskopf, *Marital Property at Marriage Dissolution*, 43 MO. L. REV. 157 (1978) (defining marital property subject to division and discussing effect of different modes of acquisition).

<sup>38</sup> State legislators, in enacting intestate succession laws, attempt to reflect the natural affinities of decedents in the allocation of estates. For example, nearer kin are favored over those more distantly related to the decedent. See *Mathews v. Lucas*, 427 U.S. 495, 514-15 (1976). The intestate succession provisions of the Uniform Probate Code reflect that desire. See UNIF. PROBATE CODE art. 2, pt. 1, general comment at 24 (1977) ("The Code attempts to reflect the normal desire of the owner of wealth as to disposition of his property at death, and for this purpose the prevailing patterns in wills are useful in determining what the owner who fails to execute a will would probably want."); see also Diab, *New Jersey and the Uniform Probate Code*, 2 SETON HALL L. REV. 323 (1971) (primary function of intestate laws should be to effectuate disposition of wealth according to decedent's normal desire).

<sup>39</sup> Sabean, *Aspects of Kinship Behavior and Property in Rural Western Europe Before 1800*, in FAMILY AND INHERITANCE 103 (1976).

<sup>40</sup> This phenomenon is demonstrated by the gross discrepancy between the number of individual income tax returns filed with the IRS and the number of returns filed for estate and gift tax. In 1982, for example, 95,482,000 income tax returns were filed, compared with 235,000 estate and gift tax returns. Fratandouno & O'Keefe, *Projections of Returns to be Filed in Fiscal Years 1984 to 1991*, 3 STATISTICS OF INCOME BULL. 25, 29 (1983).

<sup>41</sup> See H. CLARK, THE LAW OF DOMESTIC RELATIONS IN THE UNITED STATES 181-84, 219 (1968) (footnotes omitted). But cf. *Kirchberg v. Feenstra*, 450 U.S. 455, 456 (1981) (Supreme Court strikes down, on equal protection grounds, Louisiana statute granting husband, "as 'head and master' of property jointly owned with his wife, the unilateral right to dispose of such property without his spouse's consent").

of a family unit as holding title to or managing property benefits third parties. Knowing who constitutes a family and who is lawfully empowered to enter into contracts on behalf of the family unit protects third parties, provides for the effective transfer of property,<sup>42</sup> and ensures that parties may rely on the contracts they have made. As in other areas of the law, past developments in family law, such as the passage of state statutes authorizing married women to enter into binding contracts, owe much to the economic realities of their time, and the needs of both buyer and seller.

### C. Protection of Dependent Individuals

If the family provides the opportunity for individuals to pool resources, it is also intended to provide protection for dependent family members. The most obviously dependent group of family members is children; the state's imposition and enforcement of the parental duty of care and support is grounded solidly in its *parens patriae* role in safeguarding the welfare of its citizens.<sup>43</sup> Elderly or disabled adults in the family unit are similarly dependent, and state and Federal laws commonly acknowledge a family duty to provide for their support, even if the government provides additional assistance.<sup>44</sup>

The spousal duty of support has its origins in a different type of

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<sup>42</sup> This goal can be attained statutorily. See, e.g., LA. CIV. CODE ANN. art. 2350 (West Cum. Supp. 1984) (spouse may alienate or encumber movable assets of community enterprise managed solely by that spouse); *id.* art. 2351 (movable assets issued or registered in one spouse's name may be alienated exclusively by that spouse).

<sup>43</sup> The duty of parents to care for their children, whether born in or out of wedlock, was first imposed under the law of the Western Church. See Helmholz, *Support Orders, Church Courts, and the Rule of Filius Nullius: A Reassessment of the Common Law*, 63 VA. L. REV. 431, 433-34 (1977). The obligation to support that was enforced by the ecclesiastical courts was more extensive than that which would later be enforced at common law, inasmuch as it was reciprocal between parents and their children and also extended to grandparents, aunts, and uncles. *Id.* at 435-36; cf. *Becker v. Gibson*, 70 Ind. 239 (1880) (no common law obligation on child to care for indigent or helpless parent); *In re Erickson*, 104 Kan. 521, 180 P. 263 (1919) (same). *But cf. In re Connolly's Estate*, 88 Misc. 405, 150 N.Y.S. 559 (Surr. Ct. 1914) (equity will enforce child's moral duty to support or bury indigent parent). Nevertheless, most American jurisdictions ascertained a common law duty on the part of a father to support his children. Mandelker, *Family Responsibility Under the American Poor Laws: I*, 54 MICH. L. REV. 497, 499 (1956). Today, some states have passed statutes that expressly require reimbursement for outlays made by the state in connection with the maintenance of indigent family members who are either institutionalized or on state welfare rolls. See, e.g., Non-Support of Spouse and Children Act § 1; ILL. ANN. STAT. ch. 40, § 1101 (Smith-Hurd 1980).

<sup>44</sup> See *infra* note 48 for a discussion of statutes that require familial support of a parent "when in need." The existence of the family duty to provide financial support typically is weighed by the state in its calculation of public benefits. See, e.g., 42 U.S.C. § 602 (1982) (in determining need of child, states must consider resources of relatives and

disability—the legal disability imposed upon married women at common law. The husband's duty to provide support and the wife's legal inability to function as a separate individual for purposes of employment or holding title to property were inextricably linked.<sup>45</sup> Since the husband, as head of the family, was presumed to have an identity of interest with all family members, theoretically at least, supporting his wife benefited him.<sup>46</sup> Similarly, the law could not recognize any actions by a married woman as those of a separate entity, since for legal purposes husband and wife were one, and that one was the husband.<sup>47</sup>

At the present time in the United States, married women possess full legal capacity to contract, and in most states the duty of support between spouses is mutual.<sup>48</sup> Nevertheless, states continue to assert an interest in preventing an economically dependent spouse from becoming destitute, through statutory schemes for division of property either at dissolution of a marriage or upon the death of one spouse.<sup>49</sup> For example, the community property concept is intended to give an equal share of marital property to both spouses, regardless of which one has been the primary source of income to the family.<sup>50</sup> The cur-

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others living in household). See generally Note, *Children's Programs: Defining the "Truly Needy"*, 10 J. LEGIS. 548 (1983).

<sup>45</sup> "The disabilities of the married woman at common law, according to Blackstone, were deducible from the principle that upon marriage husband and wife became one, acquired a 'unity of person.'" H. CLARK, *supra* note 41, at 219.

<sup>46</sup> Cf. 2 F. POLLOCK & F. MAITLAND, *THE HISTORY OF ENGLISH LAW* 406 (2d ed. 1968) ("The husband is the wife's guardian—that we believe to be the fundamental principle; and it explains a great deal, when we remember that guardianship is a profitable right.").

<sup>47</sup> *United States v. Yazell*, 382 U.S. 341, 359 (1966) (Black, J., dissenting).

<sup>48</sup> See UNIF. CIVIL LIABILITY FOR SUPPORT ACT § 2, 9 U.L.A. 171 (1979) (requiring that "[e]very man. . . support his wife and his child [; and his parent when in need]"); *id.* § 3 (requiring that "[e]very woman. . . support her child; and her husband [and her parent] when in need"). California, one of five states which has adopted the Act, made the language gender-neutral: "Every individual shall support his or her spouse and child, and shall support his or her parent when in need." CAL. CIV. CODE § 242 (West Supp. 1984); cf. *Orr v. Orr*, 440 U.S. 268, 283 (1979) (Alabama statute that required husbands, but not wives, to pay alimony upon divorce violative of equal protection).

<sup>49</sup> *Olsen v. Olsen*, 98 Idaho 10, 17, 557 P.2d 604, 611 (1976) (Shepard, J., dissenting) ("Courts have universally recognized the inequity and injustice of turning a wife out destitute to become an object of charity in cases where the husband. . . is amply able to provide for her support, and where she has not means or ability to provide for herself. . . .") (citations omitted); cf. *In re Grove*, 280 Or. 341, 353-54, 571 P.2d 477, 485 (wife entitled to "just and equitable" support after divorce), *modified*, 280 Or. 769, 572 P.2d 1320 (1977).

<sup>50</sup> See *Prefatory Note* to UNIF. MARITAL PROPERTY ACT, 9A U.L.A. 21 (West Cum. Supp. 1984) (discussing "root concept" of community property, that "[p]roperty acquired during marriage by the efforts of spouses is shared"); cf. J. JUSTON, R. MUCKLESTONE & B. CROSS, *TAX MANAGEMENT, ESTATES, GIFTS, AND TRUSTS* A-1 to A-3 (2d

rent state of family law in the United States, then, reflects an awareness that, although no longer disabled by law, married women are apt to be in an economically less favored position than their husbands.<sup>51</sup>

Until recently, American courts considered the dependent spouse's fault, as well as her need, in determining whether or not to award spousal support. The innovative scheme of "equitable distribution" of marital property at dissolution of the marriage still permits the court to weigh a spouse's conduct during the marriage, as well as such factors as the duration of the marriage and the ability of a dependent spouse to become self-supporting, in determining the appropriate property award.<sup>52</sup> As in the regulation of sexual activity, courts have considered the reinforcement of community moral values concerning the treatment of dependent family members to be a legitimate state goal.<sup>53</sup>

#### D. Enforcement of Obligations Among Family Members

Although the state can and does delineate duties among family members, courts traditionally have been reluctant to enforce such duties during a marriage. For example, courts have refused to evaluate and rule upon the adequacy of the support a husband provides for his wife, so long as they continue to live together.<sup>54</sup> Ironically, in order to enforce a right to support imposed by state law, a dependent spouse must petition for a divorce, or at a minimum, a separation.<sup>55</sup>

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ed. 1974) (discussing implications of community property in event of one spouse's death).

<sup>51</sup> See Weitzman, *The Economics of Divorce: Social and Economic Consequences of Property, Alimony and Child Support Awards*, 28 UCLA L. REV. 1181 (1981).

<sup>52</sup> See, e.g., N.Y. DOMESTIC RELATIONS LAW § 236 (McKinney Supp. 1983-1984). See generally Foster, *An Explanation of the New York 1980 Equitable Distribution Law*, 6 FAM. L. REP. (BNA) 2651 (July 15, 1980); Freed, *Equitable Distribution as of December 1982*, 9 FAM. L. REP. (BNA) 4001 (Jan. 11, 1983) (examining equitable distribution laws in effect in several states).

<sup>53</sup> See H. CLARK, *supra* note 41, at 442, for a discussion of five rationales that courts have used to justify awards of spousal support. Professor Clark notes that alimony acts indirectly to protect the children of divorce, it prevents the wife from becoming a financial burden to the community, it eases the hardship of transition from marriage to single status, it compensates the wife for services rendered, and to some extent it *gives tangible form to moral judgments about the relative fault of the spouses*.

*Id.* (emphasis added).

<sup>54</sup> See, e.g., *McGuire v. McGuire*, 157 Neb. 226, 59 N.W.2d 336 (1953); *Commonwealth ex rel. Goldstein v. Goldstein*, 271 Pa. Super. 389, 413 A.2d 721 (1979).

<sup>55</sup> L.J. WEITZMAN, *THE MARRIAGE CONTRACT* 40-41 (1981) ("As long as a woman is living with her husband, she can take no direct legal action to enforce his duty to support her.").

Similarly, courts will not interfere with the husband's management of a couple's community property during the marriage, in the absence of evidence that the managing spouse has deliberately dissipated the couple's assets with the intent to deprive his wife of her share.<sup>56</sup> Thus, enforcement of rights and duties between spouses commonly takes place in two situations: upon dissolution of the marriage, or the death of one of the partners,<sup>57</sup> when, in effect, there no longer is a functioning family unit.

The state's role in enforcing the parental duty to care for and support children has been viewed historically as a major intrusion into the constitutionally protected zone of family privacy.<sup>58</sup> State intervention is permissible only where the parents' failure of duty has risen to the level of child abuse or neglect.<sup>59</sup> In most cases actual injury or a substantial threat of serious harm to the child must be demonstrated.<sup>60</sup> It is noteworthy that parents can in certain circumstances invoke the power of the state to reinforce their authority,<sup>61</sup>

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<sup>56</sup> See, e.g., *Sanditen v. Sanditen*, 496 P.2d 365, 367-68 (Okla. 1972) (because wife's interest in marital property vests at divorce, she is entitled to relief only if husband fraudulently gives property away). *But cf.* UNIF. MARITAL PROPERTY ACT § 4(c), 9A U.L.A. 27 (West Cum. Supp. 1984) ("Each spouse has a *present* undivided one-half interest in marital property.") (emphasis added).

<sup>57</sup> Death terminates the spouses' association vis-a-vis community property. At death, the survivor retains ownership over an undivided one-half of the community property. The deceased spouse's one-half interest in community property passes by intestacy or by testamentary disposition. Dower, curtesy, or forced share interests are not recognized by community property states. Greene, *Comparison of the Property Aspects of the Community Property and Common-Law Marital Property Systems and Their Relative Compatibility with the Current View of the Marriage Relationship and the Rights of Women*, 13 CREIGHTON L. REV. 71, 104-05 (1979).

<sup>58</sup> See, e.g., *Pierce v. Society of Sisters*, 268 U.S. 510, 518-19 (1925); *Meyer v. Nebraska*, 262 U.S. 390, 399 (1923).

<sup>59</sup> For a general overview of laws in the United States concerning child abuse and neglect, see STANDARDS RELATING TO ABUSE AND NEGLECT standards 1.4-9.1 (Tent. Draft 1977). See also Soler, Costello & O'Hearn, *Legal Rights of Children in the United States*, in THE LEGAL STATUS OF CHILDREN, 694-700 (1982) (examining legal principles and doctrines affecting children).

<sup>60</sup> Compare Areen, *Intervention Between Parent and Child: A Reappraisal of the State's Role in Child Neglect and Abuse Cases*, 63 GEO. L.J. 887, 932-34 (1975) (proposed model neglect statute broadens grounds for intervention in child abuse cases to include emotional neglect) with J. GOLDSTEIN, A. FREUD & A. SOLNIT, BEFORE THE BEST INTERESTS OF THE CHILD 105-11 (1979) [hereinafter cited as GOLDSTEIN] (intervention potentially deprives child of family environment without improving his situation) and Wald, *State Intervention on Behalf of "Neglected" Children: A Search for Realistic Standards*, 27 STAN. L. REV. 985, 1022 (1975) ("[P]arental 'inadequacy' in and of itself should not be a basis for intervention.")

<sup>61</sup> Usually this is done by petitioning the juvenile court to have the child declared "incorrigible" or "beyond parental control" so that the court can order the child to obey the reasonable commands of a parent or guardian, and punish the child for failure to comply. See generally Gough, *Beyond-Control Youth in the Juvenile Court—The Climate for*

nevertheless, actions for child abuse are not instigated by the child, but are brought by the state against the parents.<sup>62</sup>

The state's general policy of non-interference with ongoing family life reflects a time-honored concept of the family as a single entity. The immunity of family members to one another in tort,<sup>63</sup> and the existence of a privilege between spouses in the law of evidence,<sup>64</sup> are two products of this concept. The "family as one" concept is gradually being replaced, however, by a view of the family as an association of individuals.<sup>65</sup> This new perspective reflects the recognition by courts and legislatures that, as a matter of law and policy, family members may not have an identity of interest in all situations. Accordingly, many states have discarded or abridged the doctrine of intrafamilial tort immunity, and have made the spousal evidentiary privilege inapplicable in proceedings in which the spouses' interests are adverse.<sup>66</sup>

The traditional view was that the state, not the parties, determined the provisions of the marriage "contract."<sup>67</sup> Prenuptial agreements could not alter the "essentials" of the contract; tend to

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*Change*, in BEYOND CONTROL: STATUS OFFENDERS IN THE JUVENILE COURT 271 (1977); Mahoney, *PINS and Parents*, in BEYOND CONTROL: STATUS OFFENDERS IN THE JUVENILE COURT 161 (1977).

<sup>62</sup> There are two types of child abuse proceedings, civil and criminal. By a civil proceeding, the state seeks to assert juvenile court jurisdiction over an abused, neglected, or dependent child. In a criminal proceeding, the state charges a parent with abuse or neglect constituting a violation of the penal code. Compare CAL. WELF. & INST. CODE § 300 (West Cum. Supp. 1984) (dependent child) with CAL. PENAL CODE § 11165 (West Cum. Supp. 1984) (defining criminal child abuse or neglect).

<sup>63</sup> See *Hewlett v. George*, 68 Miss. 703, 711, 9 So. 885, 887 (1891) (child's suit against parent for personal injuries barred); *Burnette v. Wahl*, 284 Or. 705, 709-11, 588 P.2d 1105, 1108-09 (1978) (barring child's cause of action for emotional injuries caused by parental neglect). But see *Gibson v. Gibson*, 3 Cal. 3d 914, 479 P.2d 648, 92 Cal. Rptr. 288 (1971) (recognizing right of minor child to sue parent for negligence); *Anderson v. Stream*, 295 N.W.2d 595 (Minn. 1980) (same).

Similarly, interspousal immunity has been upheld in some jurisdictions, but abrogated in others. Compare *Hill v. Hill*, 415 So. 2d 20 (Fla. 1982) (maintaining doctrine of interspousal immunity to protect family unit) with *Coffindaffer v. Coffindaffer*, 244 S.E.2d 338 (W. Va. 1978) (rejecting common law doctrine of interspousal immunity).

<sup>64</sup> *Trammel v. United States*, 445 U.S. 40 (1980) (recognizing that accused's spouse may choose to testify against accused).

<sup>65</sup> See *Moore v. City of East Cleveland, Ohio*, 431 U.S. 494 (1977) (housing ordinance that prohibited certain family members from cohabitating declared invalid); see also *City of Santa Barbara v. Adamson*, 27 Cal. 3d 123, 127, 610 P.2d 436, 437-38, 164 Cal. Rptr. 539, 540-41 (1980) (invalidating ordinance that defined family as "individual[s]. . . related by blood, marriage or legal adoption" or no more than five persons "living together as a single housekeeping unit").

<sup>66</sup> See *supra* notes 63 & 64.

<sup>67</sup> See H. CLARK, *supra* note 41, at 35-45 (discussing state's power to control marriage relationship).

encourage divorce;<sup>68</sup> or, until recently, be made in contemplation of divorce.<sup>69</sup> In the past twenty years, however, most jurisdictions in the United States have softened their position on prenuptial contracts, in some cases even permitting agreements which effectively undercut important provisions of the state family law code.<sup>70</sup> There is an increased preference for parties to a dissolution action to work out their own divisions of property and support arrangements;<sup>71</sup> this preference is so strong in some jurisdictions that a court cannot later modify a settlement which the parties have agreed will be final.<sup>72</sup>

At the same time, the state alone determined the provisions of a marriage contract; "living-together" agreements entered into by unmarried people were, if dependent upon the illicit relationship, unenforceable in the United States.<sup>73</sup> The meretricious nature of such relationships was deemed sufficient to invalidate the entire agreement; enforcing contracts between persons engaged in unlawful sexual activity, courts determined, undercut the state's purpose in regulating sexuality and upholding morality.<sup>74</sup> This too has changed. The landmark decision in *Marvin v. Marvin*<sup>75</sup> and similar cases in other jurisdictions opened the door for judgments enforcing oral and written contracts between unmarried couples.<sup>76</sup> Moreover,

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<sup>68</sup> RESTATEMENT (SECOND) OF CONTRACTS § 190(2) (1981). The *Restatement* provides that "[a] promise that tends unreasonably to encourage divorce or separation is unenforceable on grounds of public policy." *Id.*

<sup>69</sup> See H. CLARK, *supra* note 41, at 521.

<sup>70</sup> See, e.g., *In re Marriage of Dawley*, 17 Cal. 3d 342, 357-58, 551 P.2d 323, 333, 131 Cal. Rptr. 3, 13 (1976) (upholding antenuptial agreement in contravention of California community property scheme).

<sup>71</sup> See generally Weitzman, *Legal Regulation of Marriage: Tradition and Change*, 62 CALIF. L. REV. 1169, 1249-77 (1974) (discussing various contractual arrangements parties can enter into concerning marriage and conditions for its dissolution).

<sup>72</sup> See, e.g., *In re Kilkenny*, 96 Cal. App. 3d 617, 620, 158 Cal. Rptr. 158, 159 (1979) (court refused to modify separation agreement spouses characterized as "absolute, unconditional and irrevocable"); see also UNIF. MARRIAGE AND DIVORCE ACT § 306, 9A U.L.A. 135-36 (1979) (permitting parties to enter binding agreements concerning property and child support, which courts will uphold unless unconscionable).

<sup>73</sup> See, e.g., *Hill v. Estate of Westbrook*, 39 Cal. 2d 458, 459, 247 P.2d 19, 20 (1952) (if parties "knowingly live together in a meretricious relationship. . . there is no implied obligation" of support).

<sup>74</sup> See *id.* But cf. *Morone v. Morone*, 50 N.Y.2d 481, 486 n.2, 413 N.E.2d 1154, 1156 n.2, 429 N.Y.S.2d 592, 594 n.2 (1980) (enforcing agreement between unmarried persons and specifically declining to label such relationships "meretricious" because word's "pejorative sense makes it no longer. . . descriptive of the relationship under consideration").

<sup>75</sup> 18 Cal. 3d 660, 557 P.2d 106, 134 Cal. Rptr. 815 (1976).

<sup>76</sup> See *id.* (recognizing validity of express and implied contracts between non-married individuals who engage in sexual relations); *Kozlowski v. Kozlowski*, 80 N.J. 378, 384, 403 A.2d 902, 906 (1979) (same); cf. *Morone v. Morone*, 50 N.Y.2d 481, 413 N.E.2d 1154, 429 N.Y.S.2d 592 (1980) (recognizing right of action based upon express, but not

this line of cases negated the earlier argument against permitting spouses to contract between themselves, because the state should not deny to married couples the relief it grants to unmarried persons.<sup>77</sup>

The changes described above, whose effects are as yet unmeasured, represent a major shift in law and policy. The concept of family as a contractual association, rather than a status or relationship, raises questions concerning the relationship between family and state. For example, should the state restrict this newly-evolved right to establish the provisions of the marriage contract? Are there provisions which should be void as contrary to public policy in a marriage contract—yet permissible in a business contract?<sup>78</sup> Does the state have an interest in requiring care of dependent family members, to the extent that it should prohibit or refuse to enforce marriage contract provisions by which a family member waives all right to support?<sup>79</sup> Should children of a certain age or demonstrable level of maturity be able to enter into a contract with other family members concerning their rights and duties?<sup>80</sup>

Commentators addressing those issues have, of course, done so in the context of the present-day United States. The question this article explores is the extent to which both traditional family law functions and more recently developed concepts will be appropriate in a very different environment—living in space. There may be conditions unique to an artificial space living environment which require less—or more—government intervention in family life, and which dictate state action to regulate and enforce contracts between members of a “family unit” for their benefit or the benefit of third parties. In order to answer the question of how present law will serve

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implied, contracts for personal services between unmarried cohabitants). *But cf.* *Hewitt v. Hewitt*, 77 Ill. 2d 49, 394 N.E.2d 1204 (1979) (refusing to recognize mutual property rights between unmarried cohabitants).

<sup>77</sup> See Note, *Property Rights upon Termination of Unmarried Cohabitation*, 90 HARV. L. REV. 1708, 1713-14 (1977) (economic and contractual freedom promoted by *Marvin* should be extended to married couples).

<sup>78</sup> See generally Shultz, *Contractual Ordering of Marriage: A New Model for State Policy*, 70 CALIF. L. REV. 204 (1984) (law restricts marriage partners' rights to bargain over most terms of marriage).

<sup>79</sup> See *In re Marriage of Higgason*, 10 Cal. 3d 476, 485-87, 516 P.2d 289, 295-96, 110 Cal. Rptr. 897, 903-04 (1973) (antenuptial agreements cannot waive spousal duty of support).

<sup>80</sup> See Wald, *Making Sense Out of the Rights of Youth*, 4 HUM. RTS. 13, 27 (1974) (advocating child's “right to know, to comprehend, to challenge, and to participate meaningfully in all the decisions that vitally affect his life. . . [including] any custody decision[s]”). *But cf.* Hafen, *Children's Liberation and the New Egalitarianism: Some Reservations About Abandoning Youth to Their “Rights,”* 1976 B.Y.U. L. REV. 606 (children's interests may be harmed by extending adult rights to them).

spacedwellers, we must review the available literature describing both the artificial environments to be built in space, and also the human beings who will inhabit them.

### III. ARTIFICIAL SPACE LIVING ENVIRONMENTS AND THE POSSIBLE PSYCHOLOGICAL AND SOCIAL FACTORS INVOLVED IN SELECTING PERSONNEL FOR SPACE SETTLEMENTS

#### A. *Artificial Space Living Environments*

Based on scientific and technological literature developed by both private entities and the National Aeronautics and Space Administration (NASA), human beings over the next twenty to fifty years could be living in space in one of three possible contexts. The first, "short-term" space living, refers to space travel missions of long duration—most likely three months to one year.<sup>81</sup> The second, "temporary" space living, includes space-based projects, such as operating a space station or laboratory, which would require living in the same artificial environment for one to two years or longer, but with an expectation of returning to Earth.<sup>82</sup> The third context, "permanent" space living, encompasses life in a space settlement intended as a permanent living environment for human beings.<sup>83</sup>

#### B. *Limitations of Common Approaches to the Issue of Psychological and Social Adaptation to "Living in Space"*

A review of the existing literature on long-term space flight, space travel, and living in space reveals an astonishing paucity of discussion of the psychological and social effects of such an unprecedented stage in human development. The superficiality of most of those discussions stands in sharp contrast to the elaborate and detailed development of plans for the technology of living in space.<sup>84</sup>

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<sup>81</sup> This period of time is substantially longer than any United States astronauts have spent in space. A three-man American crew spent almost three months aboard Skylab. Muson, *The Right Stuff May be Androgyny*, PSYCHOLOGY TODAY, June 1980, at 14. A Soviet crew spent 238 days aboard Salyut 7. L.A. Times, Oct. 3, 1984, at 11, col. 1.

<sup>82</sup> See Covault, *President Orders Start on Space*, AVIATION WEEK & SPACE TECHNOLOGY, Jan. 30, 1984, at 2 (discussing NASA's eight million dollar project to develop both permanently staffed civil space station and possible military space station); see also Olstead, *Targeting Space Station Technologies*, ASTRONAUTICS AND AERONAUTICS, Mar. 1983, at 28 (discussing space station design).

<sup>83</sup> For one estimation of the progression from short-term space living to permanent space settlement, see Glazer, *supra* note 5, at 102-04.

<sup>84</sup> For a discussion of the elaborate plans for the technology necessary for space dwelling, see O'Neill, *Space Manufacturing*, ASTRONAUTICS AND AERONAUTICS, Dec. 1981, at 18.

Conceptual frameworks which do contain references to potential changes in human sexual and family relationships are of three types. The first concept designates space as "the last frontier." Planners using this concept view the exploration of space as analogous to the development of the American West.<sup>85</sup> The first space settlers are depicted as rugged, courageous men attracted to risk and, by implication, ill-adjusted to the behavioral and societal norms of Earth.<sup>86</sup> They will staff the first artificial space dwellings, which, in terms of both crime rate and cultural deficiencies, will resemble a turn-of-the-century mining town in the Yukon.<sup>87</sup> According to this concept, a few women—for whose attention the tough settlers will compete—will later join the settlement. Finally, when outer space has been sufficiently "tamed," more conventional settlers, including families, will make the move into space.<sup>88</sup> The literature portraying space as a last frontier stresses the romance and thrill of the early stages of space development, while assuming that, all too soon, living in space will take on the more humdrum characteristics of life on Earth.

A second scheme for the settlement of space analogizes space living environments to that of a small town in the midwestern United States.<sup>89</sup> According to this view, settlements are self-supporting, with an agrarian-based economy; the streets, lined with individual, detached housing structures, radiating from a central "main street" complex.<sup>90</sup> Settlers leave the house every morning for work, send children to the local school, participate in civic and church activities, as

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<sup>85</sup> See H. COOPER, JR., *A HOUSE IN SPACE* 8 (1976). The author notes that [a] year after the Skylab missions were over, NASA sponsored a conference. . . [that] decided that *the colonization of space should follow the pattern of the old West*, which was first explored by small groups of men; and then by relatively young settlers, many of whom may have brought their wives with them; and finally, as more women followed, by a population whose makeup was the same as it was anywhere else. Indeed, NASA likes to present *space stations as a sort of replacement for the old West*, not only because space might provide a new source of raw materials and energy, but also, as the Ames conference saw it, because it provided "a way out from the sense of closure and of limits which is now oppressive to many people. . . in a world which has lost its frontiers."

*Id.* (emphasis added).

<sup>86</sup> For an argument that space settlement should attempt to *avoid* the historical pattern of "suppressive and violent" colonization, see Robinson, *Frontier Law at L-5*, 4 *ANALS OF AIR AND SPACE* L. 617, 626-28 (1979).

<sup>87</sup> See H. COOPER, JR., *supra* note 85, at 8.

<sup>88</sup> *Id.*

<sup>89</sup> See G. O'NEILL, *THE HIGH FRONTIER: HUMAN COLONIES IN SPACE* (1977); see also *Comments on O'Neill's Space Colonies*, in *SPACE COLONIES* 33-73 (S. Brand ed. 1977); cf. F. DYSON, *DISTURBING THE UNIVERSE* 118-26 (1979) (comparing a space settlement to the Plymouth Colony).

<sup>90</sup> See D. MOCHE, *LIFE IN SPACE* 152-55 (1979) (describing individual space allot-

if on Earth. The adherents to this concept apparently wish to reassure potential settlers that living in space will require few changes, either psychological or social.<sup>91</sup>

These first two approaches assume that living in space will not differ greatly from life on Earth; thus the references to "families" assume a simple transfer of an established legal status and social unit from one living environment to another. Neither the "small town life" nor the "last frontier" concept discusses the impact of living in space on sexual customs and practices or social institutions. A third approach does attempt to deal with the issue of sexual mores, but in a frivolous way. It assumes a chaotic, hedonistic attitude toward sexuality born of the high-risk environment of space, and is expressed in occasional references to the erotic possibilities of low-gravity environments.<sup>92</sup>

All three approaches are wholly inadequate to assess the impact relocation in an entirely artificial and alien environment will have on human sexual behavior and family structure. No Earth experience is sufficiently analogous to be used confidently in predicting such an impact. Earlier experiences in settling hostile, unfamiliar environments have taken place on a familiar planet, not an artificially designed environment. Human beings spending long periods of time in an artificial environment such as a submarine<sup>93</sup> have an expectation of returning to land; they are voyagers rather than settlers. Participants in scientific research projects involving prolonged stays in isolated parts of the globe<sup>94</sup> similarly regard their residence as only temporary. None of those partially analogous experiences involve a

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ments for home units, mechanical and life-support systems, and agricultural and food processing).

<sup>91</sup> See, e.g., F. GOLDEN, *COLONIES IN SPACE: THE NEXT GIANT STEP* 8-25 (1977).

<sup>92</sup> See T.A. HEPPENHEIMER, *COLONIES IN SPACE* 148 (1977) (listing zero-gravity erotica as a possible form of entertainment); cf. H. COOPER, JR., *supra* note 87, at 8 (recommending "an equal enough [male-female] ratio to avoid the kind of barroom brawling that occurred in the old West, where women were in short supply").

A poem, commenting on the heterosexual relationship in space, similarly suggests:  
That in weightless condition the act of coition  
Beats anything known on Earth.

J. Williamson, *A Roll in the Cosmic Hay*, reprinted in *L.A. Times*, Oct. 8, 1984, § V at 1.

<sup>93</sup> For a comparison between living in space and underseas exploration, see Helmerich, *Psychological Considerations in Underseas Habitation and Space Colonization*, 8 *INDUSTRIALIZATION* F. 9 (1977). The author notes that common characteristics of the experiences are (1) "realistic perception of actual physical danger," (2) confrontation with the unknown, (3) the totality and inescapability of the environment, (4) "cramped and physically uncomfortable" surroundings, and (5) "a singular lack of privacy." *Id.*

<sup>94</sup> See Bluth, *The Psychology and Safety of Weightlessness*, 15 *SYMP. ON SPACE RESCUE AND SAFETY* (1982) (analogizing experience of small groups in space to that of Arctic and Antarctic stations, and underseas laboratories).

highly educated population<sup>95</sup> of roughly equal numbers of men and women<sup>96</sup> living in a technologically advanced environment; one which limits the total available living space but at the same time permits extensive communication<sup>97</sup> with other communities, including those on Earth.

Only recently have planners begun to consider the physiological and psychological factors involved in selecting personnel for long-range missions and settlers for permanent living in space. The first groups of astronauts demonstrated a blend of technical know-how, imperviousness to personal risk, and "aw-shucks" modesty.<sup>98</sup> Despite the vast numbers of personnel needed to develop and implement every space mission, the early astronauts were perceived as rugged individualists rather than team players.<sup>99</sup> Gradually, as the space missions involve crews ranging in size from two<sup>100</sup> to seven,<sup>101</sup> and as non-astronaut mission specialists were sent into space,<sup>102</sup> planners re-

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<sup>95</sup> See Helmreich, Wilhelm & Runge, *Psychological Considerations in Future Space Missions*, in HUMAN FACTORS IN OUTER SPACE PRODUCTION 3 (1980) (draft text) (arguing that a long-term station "would. . . need workers with less education for relatively routine and repetitive tasks in addition to highly trained scientific and technical personnel").

<sup>96</sup> None of the space missions to date has had an equal male-female ratio. Much publicity accompanied the participation of U.S. astronaut Sally Ride in the mission of Space Shuttle Columbia in June 1983. See, e.g., N.Y. Times, June 19, 1983, § 1, at 1, col. 3. Ride and astronaut Katherine Sullivan were crew members on Shuttle Challenger in October 1984. L.A. Times, Oct. 4, 1984, at 18, col. 1. Soviet cosmonaut Valentina Tereshkova has participated in two space flights, but cosmonaut Gerogy Beregovoi, who is in charge of cosmonaut crew training, is skeptical about sending women on long flights. Bluth, *Soviet Space Stress*, SCIENCE, Sept. 1981, at 35. According to Beregovoi, "[w]omen are more emotional and are upset easier." *Id.* Similarly, chief Soviet cosmonaut Shatalov "does not want to subject women to the physical strains of longer flights that will shrink heart size and sap muscle strengths." *Id.* For a discussion suggesting that "[a] sexually mixed work force will ensure the development of a more normal society," see T.A. HEPPENHEIMER, *supra* note 92, at 107-08.

<sup>97</sup> For a discussion of the key role of inter-settlement communication in avoiding conflict, see *infra* note 112.

<sup>98</sup> A popular American writer has labelled this combination of characteristics the "right stuff." See T. WOLFE, *THE RIGHT STUFF* (1979).

<sup>99</sup> Project Mercury flights involved only one astronaut. APOLLO EXPEDITIONS, *supra* note 2, at 19-20.

<sup>100</sup> Project Gemini flight crews were composed of two astronauts; Project Apollo had crews of three. *Id.* at 34, 140, 144-45.

<sup>101</sup> Prior to October 4, 1984, no space shuttle crew consisted of more than six persons. On that date, Challenger was launched with a seven person crew, which included two women. Dye, *Closet-Size Living Space for Seven-Member Crew Stirs Uneasiness at NASA*, L.A. Times, Oct. 4, 1984, at 18, col. 1. By 1992, NASA plans to have 40 shuttle flights per year. Kotulak, *The Shuttle of the Future*, San Francisco Sunday Examiner and Chron., June 26, 1983, at A3, col. 1.

<sup>102</sup> See, e.g., Dye, *supra* note 101, at 19, col. 2 (Paul Desmond Scully-Power, a civilian oceanographer, was member of recent Challenger crew); see also Muson, *supra* note 81, at

alized that much more attention had to be paid to the interpersonal dynamics of missions and to the psychological and social consequences of confining in a limited environment for a long period of time several men bursting with "the right stuff."<sup>103</sup>

At the present time there is no definitive psychological profile of the ideal space settler or long-term mission crew member. However, experience gained in partially analogous earth settings and in the space program to date indicate at least several traits to avoid in selecting space settlers.<sup>104</sup> Moreover, there are several characteristics which can be identified as particularly advantageous. Simply because the space environment will be so different from Earth, and demand unprecedented decisions, a spacedweller must respond well to new situations.<sup>105</sup> He or she must have the ability to act indepen-

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14, 16 (noting civilian scientists from United States and other nations will perform experiments aboard Spacelab, a self-contained laboratory to be carried into orbit by space shuttle).

<sup>103</sup> See, e.g., Helmreich, Wilhelm & Runge, *supra* note 95, at 1, 3, 11-17. The Soviet Union uses human behavior scientists to screen space mission personnel and to prepare them for space flight. See Bluth, *supra* note 96, at 31-33; Carr, *U.S. Space Space*, SCIENCE, Sept. 1981, at 34; cf. Helmreich, Wilhelm & Runge, *supra* note 95, at 11 (early selection procedure for astronauts included psychiatric and psychological screening). *But cf.* Carr, *supra* (United States does not use behavior scientists in training programs).

<sup>104</sup> These include: (1) xenophobia, Staub, 1975: *A Space Odyssey*, 8 INT'L LAW 41, 52 (1974); (2) prejudice against others of different race, religion, national origin, sex, or cultural heritage, see Helmreich, Wilhelm & Runge, *supra* note 95, at 3; see also Maruyama, *Extraterrestrial Community Design: Psychological and Cultural Considerations*, 19 CYBERNETICA 45 (1976) (proposing technical design intended to accommodate cultural diversity within the same artificial living environment); Maruyama, *Design Principles for Extraterrestrial Communities*, FUTURES, Apr. 1976, at 104 (same); (3) inability to tolerate limited personal space or prolonged personal contact with others, see Helmreich, *supra* note 93, at 10; *but cf. id.* (women consistently report fewer effects from crowding and arguably have less "personal space" to protect); (4) recklessness, see *Who Will Go? Selection Procedures for Future Space Colonists*, L-5 NEWS, Feb. 1979, at 2 ("We don't want risk-takers who see danger as a kind of cleansing by fire! . . . It doesn't hurt to choose someone who is somewhat paranoid, that is to say, one who continually takes into account the potential hazards of one's environment.") (quoting Dr. Kirmach Natani of the Department of Psychiatry, University of Oklahoma Health Science Center); (5) extreme risk-avoidance, see *id.*; and (6) emotional instability under pressure, see APOLLO EXPEDITIONS, *supra* note 2, at 146 (early astronaut selection procedure using military pilots "ruled out the matadors, mountain climbers, scuba divers and race drivers and gave NASA stable guys who had already been screened for security").

<sup>105</sup> One commentary contrasts the rigidity of the individuals who "demonstrate an 'incorrigible faith' in the absoluteness of their own perception" with the more adaptable personality, "[t]he innovator, the person who sees new things" and who is open to change. Bluth, *Consciousness Alteration in Space*, FOURTH PRINCETON/AIAA CONF. ON SPACE MANUFACTURING FACILITIES 4 (1979). Dr. Bluth recommends that preflight training be devised to enable mission personnel to support and communicate effectively with persons experiencing the "radically new insights" and "radical shift in paradigm" reported by astronauts. *Id.* The purpose of such preflight training is to enable the crew to "legitimate the experience and offer some opportunity for the innovator to explain the

dently and assume responsibility, yet be a "team player"—able to follow orders and to work cooperatively.<sup>106</sup> This blend of qualities is characteristic of an "androgynous personality"—one which combines the best qualities our cultural values associate with both men and women.<sup>107</sup>

Potential spacedwellers, it seems, must have the ability to absorb new information and experiences, to perform varying tasks, to cooperate with others, and to survive the stress of an unfamiliar environment. Finding these individuals will pose a complex problem in psychological analysis; preparing them for the adjustment to spacedwelling must involve considerations quite different from those in preparing astronauts for temporary missions. Indeed, preliminary research indicates that the type of training and preparation received may affect the ability of spacedwellers to work cooperatively with one another.<sup>108</sup> Overly specialized training or rigid job assignments can foster personnel bonding patterns that could seriously jeopardize the harmony and, hence, the future of the spacedwelling community.<sup>109</sup> Further, undesirable personnel bonding could cause spacedwellers, as a group, to feel alienated from other space commu-

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alternate perspective." *Id.* at 6. Dr. Bluth assumes that this process of legitimation and communication will reduce stress among personnel and optimize "opportunities for vital human and scientific advancement, as well as personal growth." *Id.* at 7.

<sup>106</sup> A personality that combines a strong work orientation, a high motivation to solve problems, and better performance, but is relatively low in interpersonal competitiveness, is the best prospect for a crew member on a long-term mission. See Helmreich, Wilhelm & Runge, *supra* note 95, at 17.

<sup>107</sup> Androgynous astronauts are "men and women who score high on both instrumentality—a measure of the ability to manipulate the environment to achieve goals that is traditionally associated with [masculinity]—and expressivity—a measure of emotional warmth and sensitivity to others that has always been considered a more feminine trait." *Id.* These people are strongly motivated to perform assigned tasks, yet are capable of adapting to the needs of others. Muson, *supra* note 81, at 16.

<sup>108</sup> The early NASA astronaut crews were intentionally given similar training in order to increase their ability to accommodate and to tolerate one another. "When scientists from the civilian sector were introduced into the [space] program, they were trained to fly the modern jets in order to obtain pilot status with the military astronauts." Bluth, *supra* note 105, at 6; see also APOLLO EXPEDITIONS, *supra* note 2, at 147.

To encourage a feeling of group solidarity among all members of a space station population, one commentator recommends training "whole cohorts so that new crews will not be composed of strangers" rather than "rotating even-numbered crews onto a station with one-half leaving and one-half staying," which might "create two distinct and possibly antagonistic groups." Bluth, *Staying Sane in Space*, MECHANICAL ENGINEERING, Jan. 1982, at 24, 28 [hereinafter cited as Bluth, *Staying Sane*].

<sup>109</sup> Cross-training, which permits more job-sharing and flexibility, and the easing of rigid rank distinctions between crew members have been shown to improve morale and work efficiency. Bluth, *Staying Sane*, *supra* note 108, at 28. Group cohesiveness is also enhanced if entire crews have one meal together every day. *Id.*

nities<sup>110</sup> or from Earth.<sup>111</sup>

Given the serious consequences of placing psychologically unsuited personnel into the space environment, extensive screening may be necessary. One possibility would be to require potential settlers to live in artificially created Earth-based environments similar to those of the planned space environment.<sup>112</sup> Ongoing research on human behavior in analogous Earth situations and the study of astronauts and mission specialists on progressively longer space flights may also be helpful in identifying the individuals and combinations of personalities who can successfully adapt to space.<sup>113</sup> No amount of prediction and simulation, however, can entirely prepare either the individuals who choose to live in space or those who remain on Earth for all the psychological and social changes which will occur in a space community.

Similarly, given the limits on existing psychological and anthropological knowledge, we cannot, responsibly, assure spacedwellers that any legal code—or indeed, legal concepts—sent with them from Earth will prove adequate, or even relevant, to their needs. Yet to

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<sup>110</sup> Anthropologist B. Finney suggests that conflict between settlements can be minimized by making the settlements of moderate size, suitable at most for a few thousand people, and by maximizing communication between the settlements. O'Neill, *supra* note 84, at 18 (quoting B. Finney).

<sup>111</sup> Resentment of the Earth-based personnel who give instructions has been demonstrated by both United States astronauts and Soviet cosmonauts. On one Soviet mission "the crew held back on confidential messages and deliberately hid information and reactions, showing considerable agitation at what they deemed 'unnecessary questions.'" Bluth, *Staying Sane*, *supra* note 108, at 26 (footnote omitted). NASA had analogous problems with the crew of Skylab III. See Muson, *supra* note 81, at 14, 16; cf. Bluth, *Staying Sane*, *supra* note 108, at 26 (discussing conflict that arose between surface staff and occupants of undersea laboratory). The Soviet Group for Psychological Support monitors behavior of cosmonauts throughout a mission. If a problem is identified, the Group administers therapy. Bluth, *Staying Sane*, *supra* note 108, at 29; Engler & Cheshire-Engler, *Life After Lift Off*, OMNI MAG., May 1983, at 133; see also Bluth, *supra* note 96 (discussing Soviet program for dealing with space stress).

<sup>112</sup> NASA has conducted and sponsored research involving full-scale simulations of space travel and living conditions, including observation "of small groups, or microsocieties, in confined quarters for periods of up to a month." Bluth, *The Psychology and Safety of Weightlessness*, FIFTEENTH IAA SYMPOSIUM ON SPACE RESCUE AND SAFETY 4 (Paris 1982). One commentator suggests that "as a necessary precursor to space settlement a macro-scale habitat simulator would first have to be built (presumably somewhere on earth) with the capability of isolating and encapsulating an entire community of 10,000 people who would be subjected to scientific observation over a significant period of time." Glazer, *supra* note 5, at 108 (footnote omitted).

<sup>113</sup> Adaptability to the totally different environment of space may be the key factor in selection. As one commentator notes, "rather than try to keep out people who might be inclined to have an intuitive, unexpected altered state of consciousness, the focus would be upon identification and training which would help the astronaut maximize the [adaptation to space]." Bluth, *supra* note 105, at 6.

have credibility and enforcement authority, the legal code applied to spacedwellers must reflect the reality of life in that environment. Obviously it is not possible to predict all, or even most of, the changes which may occur in the process of adapting—psychologically, physically and, socially—to life in space. However, we know that certain factors affecting life in space are likely to be controlled, for example, population size and characteristics. Using that knowledge, we can extrapolate from current developments in family law those concepts and functions that may be of most use to spacedwellers, and those that will quickly become anachronistic and obsolete.

#### IV. THE INADEQUACY OF EXISTING FAMILY LAW IF APPLIED WITHOUT CHANGE TO SPACE LIVING ENVIRONMENTS

##### *A. Regulation of Sexuality*

It is easy to predict that the three visions of human sexuality in space discussed previously will not be realized. It is more difficult to anticipate exactly how sexual behavior will be affected by adaptation to space, and whether the governing body will continue to have an interest in regulating such behavior.

Initially, it is unclear what the sexual distribution of the first spacedwelling populations will be. Arguably, temporary space missions could be staffed effectively with a crew all of the same sex, or with a less than 50-50 male-female division.<sup>114</sup> Long-term missions and space settlements, however, are likely to be viewed by both planners and participants as permanent living situations requiring an "Earth-normal" and roughly 51-49 percent female-male distribution. Even given such a roughly equal sexual division, it cannot be as-

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<sup>114</sup> There may be a problem of aggressive behavior caused by competition for sexual partners. In studies of underseas research or submarine environments, many of the crews were all male. In three cases where one woman was introduced into such an environment, severe problems resulted because of sexual rivalry for the woman among the men in the crew; in a fourth case, a sexual pair (man and woman) was introduced with no problems. Address by B.J. Bluth, AIAA Annual Meeting, Long Beach, Cal. (May 11, 1983). If mission personnel are selected in part for non-aggression, or the sexual majority is female, such factors may alleviate the danger to the mission.

A controlled study of the behavior of groups of three people in a limited environment simulation of a space mission demonstrated that "[g]roups of three women get along together far better than groups of three men." O'Neill, *supra* note 84, at 20.

There is some indication that proper social structure and shared values may reduce the risk of sexual competitiveness or conflict among mixed-sex crews. In one Antarctic station where there was one woman scientist among a crew of 14, there was no reported problem resulting from the uneven sex ratio. Bluth, *supra* note 112, at 4-5. In that case, the crew was composed of civilians who had no formal role system and who used a participative decision-making system. *Id.*

sumed that all settlers will be capable of or interested in heterosexual or procreative activity.<sup>115</sup> A small space station, with residents predominantly of one sex, a certain percentage of whom "rotate" back to Earth every three months, will probably develop and approve a different range of sexual behavior than a permanent settlement of 20,000 people, some of whom were married on Earth before becoming spacedwellers.

In the first years of space settlement, there may be a relatively high "turnover" of settlers, due to inability to adapt to the space living environment. The uncertainty of the future concerning both individual relationships as well as the space living environment itself will almost certainly affect sexual behavior.<sup>116</sup>

The key issue for the governing authority is whether it should attempt to determine, in advance, which sexual behavior will prove most adaptive and appropriate to space living. As noted previously, courts upholding legislative prohibitions on certain types of sexual behavior invariably find that such behavior threatens social stability while other behavior approved by the legislature furthers it.<sup>117</sup> In recent years, however, courts and legislatures have struggled to decide whether it is better to continue to prohibit and punish behavior once deemed immoral or harmful, or to alter the law to reflect changed societal attitudes and practices.<sup>118</sup> A danger with pursuing the former course is that the enforcing authority will lose credibility with those subject to the law—an area of particular concern with a community of persons selected for their adaptability to a new environment. A danger with the latter is that the governing authority will be viewed as simply ratifying value and law choices made by the settlers, rather than as providing guidance.

### *B. Management and Control of Family Property*

The nature of "property" will almost certainly change in a space living environment. Most, if not all, of the persons living in a temporary or permanent living environment are likely to be employed by

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<sup>115</sup> For a discussion of the existence of homosexuality in many different cultures, see C. TRIPP, *THE HOMOSEXUAL MATRIX* 67-75 (1975).

<sup>116</sup> Perhaps the spacedwellers' uncertainty about the future will increase the incidence both of marriage and of non-marital sexual activity. But it is also possible that the strong group identification and the high work motivation for which space settlers will be selected will militate against such behavior if it was potentially hazardous to the success of the settlement.

<sup>117</sup> See *supra* text accompanying notes 18-21.

<sup>118</sup> See, e.g., *supra* text accompanying notes 32 & 33.

or investors in the entity—whether public or private—that built it.<sup>119</sup> Such environments may literally be “company towns.” Alternatively, space settlements may be organized and sold on a joint or condominium basis, with several companies or agencies owning part of the facilities. The artificial nature of the living environment will mean that all essentials—light, air, water, food, energy, and housing—must be provided by the settlement. The cost of those essentials<sup>120</sup> must be paid for either by the settlement authority or the settlers.

The settlers’ income derived from the settlement may vary in type. For example, it could be a salary based on performance of specific duties, a flat per capita rate for each settler, a living allowance less actual costs, or a share in the settlement profits.<sup>121</sup> Due to the limited space in an artificial environment, and the high technology orientation of the population, it seems likely that financial transactions will be conducted almost entirely by computer.<sup>122</sup>

It is possible that, given limitations on space and the governing authority’s interest in retaining ownership of the artificial space living environment, spacedwellers will not own “real property.” Any interest they do retain in, for example, their housing, may more closely resemble a cooperative share than a separate title to house and land on Earth.<sup>123</sup> If living costs are exorbitant, non-related persons may invest in a larger housing space, or assume the cost of modi-

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<sup>119</sup> Although it is possible that some space living environments will be owned and operated by national governments, private industry will likely develop settlements as “the natural endpoint of space manufacturing research.” O’Neill, *supra* note 84, at 20.

<sup>120</sup> Proponents of space settlement emphasize the low cost of providing such essentials. See G. O’NEILL, *supra* note 89, at 55-56, 138-40 (comparing cost of living on lunar surface to cost of living in artificial orbiting environment); see also F. DYSON, *supra* note 89, at 124-26 (discussing O’Neill’s cost estimates). See generally Guy, *Partially Closed System Will Save Big Money*, *ASTRONAUTICS AND AERONAUTICS*, Mar. 1983, at 50 (discussing costs of environmental control and life support in space station).

<sup>121</sup> Commentators’ estimates on the form and amount of space settlers’ income vary enormously. Compare G. O’NEILL, *supra* note 89, at 253 (estimating “average [space] family income. . . of more than \$300,000 per year in non-inflated 1975 U.S. dollars”) with F. DYSON, *supra* note 89, at 123-26 (criticizing O’Neill’s estimate). See generally N. CALDER, *SPACESHIPS OF THE MIND* 113 (1978) (discussing financial situation of space settlers).

<sup>122</sup> See N. CALDER, *supra* note 121, at 126; G. O’NEILL, *supra* note 89, at 253.

<sup>123</sup> Some commentators suggest that the space settlers will themselves be investors in the settlement, and that they will have to recoup the initial investment costs before they can “own” the settlement, either wholly or in part. *E.g.*, N. CALDER, *supra* note 121, at 113. Professor O’Neill has suggested that, to attract settlers, space living environments will offer “free passage, initial personal ‘grubstake’ capital, and perhaps initial free housing.” G. O’NEILL, *supra* note 89, at 251. He suggests that this housing will be small and standardized, and that after the settlement’s economic situation improves, the settlers will design extensive common recreational areas. *Id.* at 254-55.

fyng individual housing units to create a larger joint space.<sup>124</sup> Will this living space be regarded as held "in common" or as a "family" dwelling which, on the death of one holder, passes to the others? Just as a married woman's legal ability to buy and sell property developed out of changed economic circumstances,<sup>125</sup> changes in the social and sexual relationships formed by spacedwellers will affect the way property is defined and held.

In order to attract settlers and wide-based financial support from Earth, it is likely that settlement authorities will seek to facilitate investment in the space living environment.<sup>126</sup> Since initially it will be hard to estimate the settler attrition rate,<sup>127</sup> obstacles to transfer of title will be minimized in order to replace lost settlers rapidly. Property title and liquidity will be easy to determine since the settlement authority has an interest in maintaining the credibility of any title or security it issues.

These factors suggest that spacedwelling communities will develop a uniform method, probably government controlled or insured, of determining title and supervising the transfer of both real and personal property.<sup>128</sup> Given such a scheme, it is questionable whether the governing authority will have a strong interest in identifying or treating differently "marital" or "family" property. Where there are unlikely to be "marital homes," in the sense of free-standing houses

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<sup>124</sup> Cf. Bluth, *Staying Sane*, *supra* note 108, at 28 (Skylab astronauts point out need for more adaptability in living quarters). Such adaptability in an artificial space living environment would permit groups of individuals, including sexual partners, to pool their space allotments and combine two single bedrooms to make a double, for example, or expand a common living area or kitchen.

<sup>125</sup> For a brief summary of the changes in the law affecting married woman, see H. CLARK, *supra* note 41, at 222-29. For an argument that greater legal and economic opportunity for women is part of a societal change "from traditional (nonliterate and agricultural) to modern (urban, industrial)," see B. YORBURG, *FAMILIES AND SOCIETIES: SURVIVAL OR EXTINCTION?* 115-18 (1983).

<sup>126</sup> See G. O'NEILL, *supra* note 89, at 251.

<sup>127</sup> Settlers may be lost through inability to adapt to the space environment, general disillusionment, or physical injury or death. No commentator has ventured to estimate an attrition rate. See, e.g., G. O'NEILL, *supra* note 89, at 260-63 (estimating generous population increase in colonies but failing to subtract for those settlers who permanently return to Earth). *But cf.* F. GOLDEN, *supra* note 91, at 124-26 (assuming transition period during which people on temporary assignments in space will decide to stay permanently).

<sup>128</sup> See *supra* note 123 and accompanying text for a discussion of the probable "form" of ownership of real property in space. As one commentator has observed, "the whole concept of private property and family law will be different. You won't have private property in a space community and marriage and divorce may also substantially change." Jenkins, *Are Lawyers Ready for Space Suits?*, TWA AMBASSADOR, Jan. 1980, at 24 (quoting G. Robinson).

which a married couple owns by way of marketable title,<sup>129</sup> and where all adult members of a settlement are employed by the same entity and are entitled to similar, if not equal, shares in that entity's profits, arguably such an interest is not present. However, if, as discussed herein, the governing body decides to recognize self-defined "family units" for purposes of assuring the support of dependents, such recognition may take the form of providing superior title or tax advantages to "family" property. Also, if there is wide variation in salaries or shareholding rights, groups of settlers may wish to pool their income and resources and be recognized as a property-owing group.

One problem with defining certain property as "family" arises when "family members" decide to leave the settlement. If property ownership is a matter between the person and the settlement, he or she could simply sell out an individual interest or retain it and collect income from the investment. Private arrangements to sell out a share could be made within "family" units. The question is whether the settlement authority should regulate such transfers of property between "family" members differently than between "unrelated" settlement members.

### C. Protection of Dependent Individuals

#### 1. Children

In space, as on Earth, children will continue to need care and support,<sup>130</sup> although the definition of "child" or "minor" may be changed by acknowledging the effects that living in an artificial environment may have on the physical and emotional development of human infants.<sup>131</sup> The issue for the developer of a legal code is whether the existing means of establishing and enforcing an obligation to support a child can, without change, apply to spacedwellers.

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<sup>129</sup> Cf. D. HAYDEN, *REDESIGNING THE AMERICAN DREAM & THE FUTURE OF HOUSING, WORK AND FAMILY LIFE* (1984) (describing architectural plans designed to reflect increasing number of working women); *supra* note 124 and accompanying text (discussing adaptable housing).

<sup>130</sup> This article assumes that, at least until "humankind" evolves into "spacekind," human infants, whether conceived and gestated *in vitro* or *in utero*, will be born at an immature stage requiring nurturance and protection by adults for at least several years.

<sup>131</sup> The rapid adaptation of space-born children to their environment, for example, coupled with the likelihood that such children will be educated to perform essential work for the settlement, may result in the attainment of some legal rights at an earlier "age of majority" than their Earth counterparts. Cf. F. ZIMRING, *THE CHANGING LEGAL WORLD OF ADOLESCENCE* 111-15 (1982) (suggesting that there should be two "ages of majority" on Earth—one for liberty and one for responsibility and entitlements).

The artificial environment of a space community will have only limited resources to meet the living needs of the settlers. The limited resources will necessitate a limited population, probably accomplished through restrictions on the numbers of both new adult settlers and children.<sup>132</sup> Both limited resources and limited population suggest that, in space, the settlement authority will scrutinize the care and supervision of children more closely than might occur on Earth. Initially, the lack of information about the adaptation of a fetus, infant, young child or adolescent to the space environment will also require extensive observation and testing. Those procedures may be provided by community-wide nutrition, exercise, and health care programs, designed especially for children,<sup>133</sup> and available regardless of the parents' financial status or participation in the settlement.

The high cost of operating a space settlement will encourage the early and specialized education of children and the use of children in suitable employment. If space settlements are to be successful, children born into such settlements can be expected to adapt psychologically as well as physically to the non-Earth environment in a way somewhat different from an adult.<sup>134</sup> These "spacekind" children thus may have stronger ties to and interest in the settlement than their parents have. This direct relationship between the "spacekind" child and the settlement may establish a clearer duty on the part of

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<sup>132</sup> The effects on the human reproductive system of long-term living in a less than earth-normal gravity environment are not yet known. Soviet cosmonauts' sperm counts are abnormally low while in orbit; similar results for United States astronauts have not been confirmed. See Engler & Cheshire-Engler, *supra* note 111, at 112. Early research shows that menstrual cycles are lengthened by low gravity, but it is unknown whether they would cease altogether in total weightlessness. *Study May Give Clues to Chances of Pregnancies in Outer Space*, Miami Herald, May 20, 1984, at 2. Since the human womb simulates a low-gravity environment, exposure to low-gravity may not affect an embryo. *Id.* (quoting Dr. Suzanne Fortney of the Johns Hopkins School of Hygiene and Public Health). But see *Making Babies in Space*, SCI. DIG., Oct. 1981, at 98 (research with frogs and chickens indicates higher incidence of abnormalities in embryos in low-gravity environment). The difficulty in conceiving may prove advantageous in controlling birth, since procreation by spacedwellers may occur only after planned sexual activity in an Earth-normal gravity environment. Cf. G. ROBINSON, *LIVING IN OUTER SPACE* 71-77 (1975) (discussing potential genetic engineering techniques that could be used to produce desirable spacedwellers); McIntire, *Parenthood Training or Mandatory Birth Control: Take Your Choice*, PSYCHOLOGY TODAY, Oct. 1973, at 34 (discussing how technological advances are useful in birth control).

<sup>133</sup> The idea of government subsidized nutrition and health care programs for children is not new, although the idea that such programs be standardized to maximize the scientific opportunities to observe child development is. For a summary of these programs in the United States, see Soler, Costello & O'Hearn, *supra* note 59, at 703-13.

<sup>134</sup> Cf. B. BETTELHEIM, *THE CHILDREN OF THE DREAM* (1969) (Israeli children raised in kibbutzim have group-centered rather than individualistic identity).

the settlement authority to promote the child's health and welfare,<sup>135</sup> and a corresponding right of the child, separate from that of his parents, to remain in the settlement and enjoy its benefits.<sup>136</sup> Indeed, if "spacekind" children are physically or psychologically adapted to life in the artificial space environment, they may be severely damaged if parents have the unlimited right to remove them.

## 2. Non-wage earning or disabled adults

In a permanent space settlement, every able-bodied adult is presumed to be wage earning or share-holding.<sup>137</sup> As a result, the concept of "dependent spouse"—one spouse dependent upon another for economic support—may no longer be applicable.<sup>138</sup> On the other hand, the hazardous nature of living in an artificial space environment may produce at least some disabled adult settlers who will be partially or wholly incapable of supporting themselves. The high risk of injury or death, coupled with the potentially high attrition rate among settlers, may create a problem if a disabled adult has no spouse responsible for his or her support.<sup>139</sup> A similar problem could

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<sup>135</sup> The governing authority presumably will possess and exercise a general interest in promoting the health and well-being of minors. Such *parens patriae* authority justifies state regulation of child labor, compulsory school attendance laws, child abuse and neglect proceedings, and other actions that may restrict parents' control over children. See generally Wald, *State Intervention on Behalf of "Neglected" Children: A Search For Realistic Standards*, in PURSUING JUSTICE FOR THE CHILD 246 (M. Rosenheim ed. 1976).

<sup>136</sup> Cf. *infra* note 153 (discussing how child's best interests in remaining in state is important in custody proceeding). A state may exercise jurisdiction in a custody matter if a child has had "significant contacts" with the state. See *Lustig v. Lustig*, 99 Mich. App. 716, 722, 299 N.W.2d 375, 380 (1980).

<sup>137</sup> One commentator suggests that because virtually all adult settlers will possess essential skills, settlers will share "a frontier spirit of equality; every job [will be] an important one." D. L. MOCHE, *supra* note 90, at 151.

<sup>138</sup> This assumes that there will be no predictable, widespread disparity in earning ability between men and women spacedwellers. Presently, in the United States, a man's earning power typically increases during the course of a marriage, while a woman's does not. See J. KREPS, *SEX IN THE MARKETPLACE* 40-44 (1971). This disparity may be explained in part by the reduced labor force participation by women during what are prime working years for men. *Id.* at 28-30. If female spacedwellers' employment history follows the same patterns as males', and if employment is not divided along sex-based lines (or, if so divided, is compensated equally for men and women), a "dependent spouse" will be a rarity. However, if women spacedwellers still assume the bulk of responsibility for childcare and housework, their work histories will differ from men's, with a resulting disparity in economic resources and bargaining power. For an analysis of the potential problems in treating men and women as equal agents capable of negotiating marriage terms, given current economic constraints, see Olsen, *The Family and the Market: A Study of Ideology and Legal Reform*, 96 HARV. L. REV. 1497, 1529-42 (1983).

<sup>139</sup> It has been suggested by one commentator that the term "handicapped" may have a different significance in an artificial space environment where, for example, limbs may be a hindrance. Kang, *Attorneys Prepare to Launch Careers Into Outer Space*, L.A. Daily J.,

occur with respect to elderly settlers who, as a result of physical or mental deterioration associated with age, become unable to provide for their own support.<sup>140</sup>

These concerns may encourage the development of larger, self-defined social or "family" units, whose members are responsible for one another's support. Other factors supporting such a social development include the possibility that disability pensions will be limited or inadequate as a result of high start-up costs and speculative profits burdening the settlement governing authority and, at least until an accurate actuarial assessment of living in space can be calculated based on experience, the likelihood that the cost of private insurance for settlers will be prohibitive. Moreover, development of self-defined "family" units would not be unprecedented. Courts have recognized as "family equivalents" voluntary associations of non-related adults, where such recognition furthers an important public policy.<sup>141</sup>

#### *D. Enforcement of Family Obligations*

It seems clear that it would be difficult, and probably undesirable, to design a standard "marriage contract" to be imposed upon settlers by the settlement's governing authority. Until "spacekind" have adapted fully to the artificial living environment, governmental activity designed to encourage certain types of economically dependent relationships between family members could be counter-productive.<sup>142</sup>

The settlement authority does, however, have an interest in en-

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Feb. 13, 1984, at 18; *see also* T. Thompson, Disaffirmative Action for the Physically Disabled in Gravity-Free Environments (unpublished paper on file with NASA-Hastings Research Project). For the purposes of this article, assume that a "disabled" person has a physical or mental defect or disability that results in a demonstrated inability to perform tasks both essential to survival and of economic benefit to the community.

<sup>140</sup> It is especially difficult to estimate the extent of this problem because of the dearth of information about the effects of space living upon the human aging process. *See* G. O'NEILL, *supra* note 89, at 258-59.

<sup>141</sup> *See, e.g.*, *J.W. v. City of Tacoma*, Wash., 720 F.2d 1126, 1131-32 (9th Cir. 1983) (court recognizes special need for family-like homes for the mentally retarded); *cf. Smith v. Organization of Foster Families*, 431 U.S. 816, 843 (1977) ("[B]iological relationships are not exclusive determination of the existence of a family.") (footnote omitted); *Moore v. City of East Cleveland, Ohio*, 431 U.S. 494, 506 (1977) ("[T]he Constitution prevents East Cleveland from standardizing its children—and its adults—by forcing all to live in certain narrowly defined family patterns."). *But cf. Belle Terre v. Boraas*, 416 U.S. 1 (1974) (Supreme Court upheld local ordinance that defined family as no more than two people unrelated by marriage, blood, or adoption). *See generally* Jensen, *From Belle Terre to East Cleveland: Zoning, the Family, and the Right of Privacy*, 13 *FAM. L.Q.* 1 (1979).

<sup>142</sup> The governing authority must remember the need to preserve credibility by fashioning a legal system responsive to the realities of living in space.

forcing contracts and agreements affecting property rights in order to protect titles, ensure the validity of contracts, and preserve social order. These interests are the same, whether the contract in question is made between settlers who are strangers or settlers involved in a social or sexual relationship.<sup>143</sup> In light of the uncertainty about sexual relationships in a space environment, the traditional state concern in disallowing "meretricious" contracts is questionable.<sup>144</sup>

If there is no standard, state-imposed "marriage contract" or contract setting out support obligations between men and women who establish a sexual partnership, then there may be no basis for governmentally imposed duty of support. However, if adult settlers enter into private support agreements, or voluntary "family units" develop, the governing authority may have an interest in enforcing such agreements in ongoing relationships.<sup>145</sup> Enforcement of support obligations among "family" members could be accomplished much more readily than on Earth,<sup>146</sup> given the simplified property scheme,<sup>147</sup> the probable control of economic transactions by the governing authority,<sup>148</sup> and the lack of opportunity to escape support duties by fleeing the jurisdiction.<sup>149</sup>

The economic dependence of children, by contrast, will give rise to the governing authority's interest in imposing and enforcing a duty to support them. That duty may arguably be imposed, not solely upon the biological parents, but upon other adult settlers who have a "family" relationship to a child. The high cost of conceiving<sup>150</sup> and supporting a child in space may encourage economic and

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<sup>143</sup> For a discussion of the analogous interests of the state in regulating economic transactions and marital relationships, see Olsen, *supra* note 138.

<sup>144</sup> For a discussion of meretricious contracts, see *supra* notes 73-77 and accompanying text.

<sup>145</sup> One commentator has pointed out that the state's "nonintervention" in family affairs has usually ratified "preexisting social roles within the family." Olsen, *supra* note 138, at 1504. Nonintervention will be beneficial to the spacedwelling family if social roles have already been adapted to the space environment. Nonintervention may militate *against* effective adaptation, however, if it encourages a continuation of Earth-normal social roles among the spacedwellers.

<sup>146</sup> The problem of enforcing child support obligations recently prompted Federal legislation. See Child Support Enforcement Amendments of 1984, Pub. L. No. 98-378, 1984 U.S. CODE CONG. & AD. NEWS (98 Stat. 1305) 2397.

<sup>147</sup> See *supra* text accompanying note 128.

<sup>148</sup> See *supra* text accompanying note 122.

<sup>149</sup> This may be the most unpleasant aspect of life as a spacedweller because, without the ability to finance transportation back to Earth, one is essentially confined within the artificial living environment. In the "transitional" stages of spacedwelling, shuttles to other settlements or Earth may be infrequent and access to them controlled rigorously. See N. CALDER, *supra* note 121, at 113.

<sup>150</sup> The possible difficulties of conception in a low-gravity environment, see *supra* note

psychological sponsorship of children by other members of the settlement as well as parents. The high attrition rate, coupled with the possibility that space-born children may not be able to leave the space environment without physical or psychological harm, may contribute to the need for adult settlers who can "parent" such children if their biological parents leave the settlement.<sup>151</sup> The governing authority thus might enforce private contracts among adults to support a particular child<sup>152</sup> or to transfer, to a substitute parent, custody of a child who must remain in the settlement after his or her parents die or return to Earth.<sup>153</sup>

As suggested previously, changes in the nature of property would likely make a special designation of "marital" or "family" property unnecessary.<sup>154</sup> If voluntary associations of adults or sexual partners agreed to hold property jointly or to divide it under certain circumstances, the governing authority could enforce such agreements. If the basis for property division is strictly the term of the contract, however, the end of a sexual or social relationship would not automatically trigger the division of property.<sup>155</sup> Further, the governing authority's interest in assuring clear title and the facile transfer of property would be served by requiring agreements for property division to be recorded.<sup>156</sup>

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132, may mean that attempts to conceive will have to take place in simulated Earth-normal gravity environments, which would probably be expensive to maintain.

<sup>151</sup> See also *supra* text accompanying notes 134-36 for a discussion of the right of a child born in space to remain with the space colony when the child's parents decide to leave.

<sup>152</sup> Cf. Gersz, *The Contract in Surrogate Motherhood: A Review of the Issues*, L. MED. & HEALTH CARE, June 1984, at 107 (discussing current debate over contracts involving surrogate mothers); Wadlington, *Artificial Conception: The Challenge for Family Law*, 69 VA. L. REV. 465, 479-514 (1983) (same).

<sup>153</sup> In cases where there is a dispute over custody, courts have weighed the impact on the child of a move to another geographical area and have changed legal custody upon a finding that it would be in the child's best interest to remain in a familiar geographical area. *E.g.*, *Jines v. Jines*, 63 Ill. App. 3d 564, 570-77, 380 N.E.2d 440, 443-44 (1978) (applying statutory guidelines); cf. Foldberg & Graham, *Joint Custody of Children Following Divorce*, 12 U.C.D. L. REV. 523, 561-62 (1979) (in joint custody cases, one parent's move to another jurisdiction may justify modification of custody order).

The custody rights of non-parents, and the child's interest in preserving a relationship with non-parent adults, are emerging areas of custody litigation. See generally McGough & Shindell, *Coming of Age: The Best Interests of the Child Standard in Parent-Third Party Custody Disputes*, 27 EMORY L.J. 209 (1978); Zaharoff, *Access to Children: Towards A Model Statute for Third Parties*, 15 FAM. L.Q. 165 (1981).

<sup>154</sup> See *supra* text accompanying notes 128 & 129.

<sup>155</sup> Similarly, where a married couple or family members jointly undertake a business enterprise, the end of the marriage or other rupture of family harmony does not require the closing of the business.

<sup>156</sup> The requirements of the Statute of Frauds are applicable to those contracts that

*E. Interest of Governing Authority in Regulating "Family" Units*

The creation of some type of stable, reliable social structure is essential to the successful functioning of a space settlement. The governing authority must address the uncertainty over the effect of space living on family relationships and the danger that sexual partnerships or group affiliations will form in a way that threatens social stability. By not providing an initial advantage to any given type of sexual partnership or association, but assuring protection of individual contract rights and of those community members demonstrably in need of support and protection, the governing authority could reduce the risk of unstable "family" units. If and when certain kinds of sexual and family relationships are clearly shown to be of benefit to the space settlement, the governing authority could adopt legal rewards and sanctions designed to promote and protect these "preferable" social units.

Given the need to let the settlers evolve their own appropriate social structure, the governing authority should enact and enforce a legal code which is simple, flexible, and reflective of the realities of life in the artificial space environment. To ensure the code's credibility, all adult settlers—and all children capable of reading and understanding it—should be familiar with its provisions.<sup>157</sup> Ready access to the code and the assurance of prompt enforcement would increase its acceptability to both the first settlers and their "spacekind" descendants.

Finally, the settlement's interest in preserving the rights of its settlers dictates a need for the registering nation to recognize whatever legal scheme the settlement develops. For the settlement's legal code to be effective, jurisdictions on Earth must give full faith and credit to a contract or will made out by a settler conveying Earthside property to another settler who is a member of the same "family unit." If, in fact, the social and sexual customs that evolve in a space settlement differ from those on Earth, obtaining full faith and credit may be difficult.

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make "provision for a marriage settlement or for the regulation of the property rights of husband and wife." A. CORBIN, CONTRACTS § 462 (1952).

<sup>157</sup> One commentator has advocated the adoption of a uniform civil infraction code "to ensure that each spacefarer know his/her rights, duties, and obligations under the governing law of the spacecraft." See Note, *Dispute Resolution in Space*, 7 HASTINGS INT'L & COMP. L. REV. 211, 220 (1983).

V. RECOMMENDATIONS FOR A MODIFIED FAMILY LAW APPROACH  
TO LEGAL ISSUES ARISING DURING TRAVEL MISSIONS  
AND IN "TEMPORARY" SPACEDWELLING  
ENVIRONMENTS

*A. Space Travel of Long Duration—Short-Term Spacedwelling*

Participating in space travel of three to six months duration will probably require the least psychological and social adjustment by mission personnel.<sup>158</sup> The sense of traveling to and from a destination, and the expectation of returning to Earth, suggest that these people will continue to think of Earth, and of a specific Earthside place, as their home. However, the limited information obtained from both American and Soviet flight crews indicates that some sense of alienation from the planet of origin is likely. Certainly we have no real basis from which to conclude that a crew in a space vessel for over a year will not come to regard that vessel, and its space setting, as their true dwelling place.

Given this uncertainty, persons participating in long-duration travel should be given the option of declaring an Earthside domicile or a domicile of "space as a place." The latter declaration would effectively bring all matters involving family law affecting the space traveler within the jurisdiction of the United States Federal courts.<sup>159</sup> Since Federal jurisdiction encompasses "space as a place," resolution of disputes involving family law might take place either Earthside or actually in space. One commentator has suggested that to avoid dissension and delay which could severely hinder the success of a space mission, some kind of abbreviated civil resolution procedure must be developed for use during an ongoing mission, subject to judicial re-

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<sup>158</sup> See *supra* text accompanying notes 93 & 114.

<sup>159</sup> The concept of a jurisdiction encompassing "space as a place" is consistent with present day Federal jurisdictional law. Article III of the Constitution extends Federal judicial power "to all Cases of admiralty and maritime Jurisdiction." U.S. CONST. art. III, § 2, cl. 1. Congress has extended the special maritime jurisdiction of the United States in certain criminal matters to include

[a]ny vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies and the Convention on Registration of Objects Launched into Outer Space, while that vehicle is in flight, which is from the moment when all external doors are closed on Earth following embarkation until the moment when one such door is opened on Earth for disembarkation or in the case of a forced landing, until the competent authorities take over responsibility for the vehicle and for the persons and property aboard.

18 U.S.C. § 7(6) (1982). See generally Gorove, *supra* note 5, at 313-17 (discussing criminal jurisdiction in space).

view in Federal court upon return to Earth.<sup>160</sup>

Proposals for prompt resolution of civil and criminal matters in space assume that both parties to such disputes will be participants in the mission.<sup>161</sup> The space travelers who elect a "space as a place" domicile, however, very probably will have spouses, children, and other relatives who continue to reside on Earth. Marital property is also likely to be located on Earth. A potential problem with permitting the option of an off-Earth domicile is a denial of fundamental fairness to other parties by resolving legal issues in the "space as a place" proceeding. For decisions affecting division of "family" property or support of dependent family members, domicile of one party and personal jurisdiction over the other would likely be necessary. One approach would be to follow the present majority rule in United States family law jurisdictional conflicts and permit a court, Earth-side or in a space-based proceeding, to determine the validity of a marriage, the separation of the parties, or dissolution of a marriage, only upon a finding that one party is domiciled within the jurisdiction of the court, and the other party has received adequate and effective notice.<sup>162</sup>

Alternately, the "space as a place" jurisdiction could enact a long-arm statute permitting resolution of property and custody matters where one party is domiciled in "space as a place" and the child or property affected is located there.<sup>163</sup> A key concern with long-arm statutes has been that the non-domiciled party should not be placed at a disadvantage because of distance from the adjudicating forum.<sup>164</sup> However, technological developments may help to satisfy the requirements of due process.<sup>165</sup> For example, the non-domiciled

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<sup>160</sup> See Note, *supra* note 157, at 226-27.

<sup>161</sup> See *id.* at 227; see also DeSaussure & Haanappel, *A Unified Multinational Approach to the Application of Tort and Contract Principles to Outer Space*, 6 SYRACUSE J. INT'L L. 1 (1978) (addressing conflict of laws problems arising when personnel traveling in a space artifact are of different nationalities); E. MacMorran, *The Procedural Problems of Administering Criminal Justice in Space* (Oct. 1983) (on file with NASA-Hastings Project for Astro-law Research).

<sup>162</sup> See, e.g., *Estin v. Estin*, 334 U.S. 541 (1948); *Williams v. North Carolina*, 325 U.S. 226 (1945); *Williams v. North Carolina*, 317 U.S. 287 (1942); *Zieper v. Zieper*, 14 N.J. 551, 103 A.2d 366 (1954).

<sup>163</sup> Cf. KAN. STAT. ANN. § 60-308(b) (1983) (Kansas long-arm statute). That statute provides that personal jurisdiction lies upon any person: "(8) living in the marital relationship within the state notwithstanding subsequent departure from the state, as to all obligations arising from maintenance, child support or property settlement. . . if the other party to the marital relationship continues to reside in the state." *Id.* But cf. *Kulko v. Superior Court*, 436 U.S. 84 (1978) (limiting application of California's long-arm statute).

<sup>164</sup> See, e.g., *World-Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286 (1980).

<sup>165</sup> See, e.g., *Barber & Bates, Videotape in Criminal Proceedings*, 25 HASTINGS L.J. 1017

party's ability to receive adequate and effective notice and to be heard may be greatly improved by technological advances, which permit full, two-way audio and video transmission of proceedings.

A space traveler who elects to preserve an Earthside domicile should be protected against proceedings which resolve family law matters while he or she is off-Earth participating in the space mission. The fact that both the traveler and his or her spouse are domiciled in, for example, California, should not, without proof of effective notice and opportunity to be heard, permit a court of otherwise competent jurisdiction to render a judgment affecting any of the essential family law issues listed above.<sup>166</sup> Such a requirement may cause delay in matters where prolonged uncertainty can cause hardship, as in child custody decisions.<sup>167</sup> Such a delay, however, must be weighed against the disadvantage of requiring the space traveling party to defend against an action having significant consequences while out of touch with important Earthside sources of evidence.

If both parties to a family-law-type proceeding have elected to be domiciled in "space as a place," the forum for the proceeding should be off-Earth, unless at least one party can show that an Earthside location is appropriate because it would facilitate discovery and the availability of witnesses. This requirement would encourage the psychological and social adjustment of space travelers while satisfying the essentials of due process.

### *B. Temporary Space Living Environments*

The term "temporary" suggests that some spacedwellers will continue to regard Earth as home and desire to preserve an Earthside

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(1974); Doret, *Trial by Videotape—Can Justice Be Seen to Be Done?*, 47 TEMP. L.Q. 228 (1974); *Videotaped Murder Trial in Ohio*, 68 A.B.A. J. 533 (1982).

<sup>166</sup> A fundamental requirement of due process in any judicial proceeding is "notice reasonably calculated, under all the circumstances, to apprise interested parties of the pendency of the action and to afford them the opportunity to present their objections." See *Mullane v. Central Hanover Bank & Trust Co.*, 339 U.S. 306 (1950). It has been held that where the defendant has received notice of the divorce action, and has participated in it by appearing generally, filing pleadings, and retaining an attorney, the resulting divorce decree is entitled to full faith and credit. *Sherrer v. Sherrer*, 334 U.S. 343, 352 (1948). A defendant can avoid the effects of the *Sherrer* doctrine by entering a special appearance to contest jurisdiction. See, e.g., *Spalding v. Spalding*, 171 Conn. 220, 224, 368 A.2d 14, 20 (1976). Even though an *ex parte* proceeding may validly dissolve a marriage, full faith and credit need not be given as to property division and support rights where the court does not have personal jurisdiction over both parties. *Vanderbilt v. Vanderbilt*, 354 U.S. 416 (1956); *Estin v. Estin*, 334 U.S. 541 (1948).

<sup>167</sup> See generally Bodenheimer, *Interstate Custody: Initial Jurisdiction and Continuing Jurisdiction Under the UCCJA*, 14 FAM. L.Q. 203 (1981) (describing changes in law effected by Uniform Child Custody Jurisdiction Act).

domicile. The nature of the temporary living environment and the type of work required of personnel could significantly affect such a decision. For example, if personnel in a space station are rotated back to Earth every three months, or remain on the station for years but regularly have extensive contact with teams of scientific researchers assigned for shorter periods to the space station laboratories, they may not develop the sense of alienation that could foster the development of sexual and family relationships different from those in the United States.

Accordingly, spacedwellers in temporary space living environments should probably be treated as falling under the legal scheme set out above for long-term space travelers. If, however, a majority of the personnel in a temporary space living environment have fully adapted to space, the applicable legal scheme should be that set out below for permanent space living environments, notwithstanding the presence in the environment of visitors or space travelers.

*C. Substantive Family Law Applicable to Short-Term Space Travel and Temporary Space Living Environments*

The preceding discussion has focused upon the need for a legal scheme which will clarify issues of domicile and conflicts of law, rather than create a new substantive body of family law. While the experience of many generations of participants in space travel and "temporary" spacedwelling may well give rise to changes in social and sexual customs like those anticipated in the permanent settlements, at least initially, the substantive law in those environments is likely to remain consistent with that prevalent in the United States. In order to facilitate the transition to "space as a place" with a minimum of substantive law conflict, it may be advisable to adopt for the short-term and temporary environments some generally acceptable substantive code such as the *Uniform Marriage and Divorce Act*,<sup>168</sup> which uses legal concepts and procedures familiar to most United States jurisdictions.

VI. RECOMMENDATIONS FOR AN APPROACH TO FAMILY LAW  
ISSUES IN PERMANENT SPACE LIVING ENVIRONMENTS

*A. Jurisdictional and Conflicts Matters*

The spacedwellers of the future must be encouraged to develop a legal scheme which will serve their needs for prompt and consistent resolution of disputes, and will reflect the realities of life in a perma-

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<sup>168</sup> 9A U.L.A. 97 (1979).

nent space environment. Simply establishing the "space as a place" jurisdiction may be fully satisfactory for those purposes. If all living environments within "space as a place" registered to the United States are governed by a uniform family law system only slightly modified to meet the needs of temporary spacedwellers and travelers, there will be little room for experimentation or growth in the legal system of permanent environments.

To provide this scope, each permanent living environment should be given authority to develop its own local family law consistent with the Constitution of the United States. This arrangement would be similar to that enjoyed by the various territories of the United States.<sup>169</sup> Decisions of the governing authority of a permanent space environment should be entitled to full faith and credit by other space environments and other states and territories under the jurisdictions of the United States.<sup>170</sup>

To underscore the authority of the governing body to establish its own local law, a presumption of domicile in the space environment would be created for all occupants of the space environment designated as settlers, even for a minimum two-year period.<sup>171</sup>

### *B. Permanent Space Environment Regulation of Family Law Matters*

The governing authority of the permanent space environment should adopt, initially, a neutral position concerning sexual relationships between adults. If it becomes clear that the social stability of the settlement is significantly enhanced by a particular type of sexual relationship, the authority may wish to encourage its development by economic or other incentives. The government should impose criminal sanctions only upon sexual activity to which a party has not given consent or is unable to give consent because of immaturity, or mental or physical disability. A civil remedy may also be made available to persons injured by non-consensual sexual activity.

Procreation may be regulated for the dual purposes of controlling the settlement population and ensuring that all dependent children have adults responsible for their care and financial support.

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<sup>169</sup> Cf. 28 U.S.C. § 1738 (1982). In that section, Congress has provided that judgments "shall have the same full faith and credit in every court within the United States and its Territories and Possessions as they have by law or usage in the courts of such State, Territory or Possession from which they are taken." *Id.*

<sup>170</sup> Compare *id.*

<sup>171</sup> Cf. *Sosna v. Iowa*, 419 U.S. 393 (1975) (states can establish residency requirements for individuals seeking divorce); UNIF. DIVORCE RECOGNITION ACT § 2, 9 U.L.A. 661 (1979) (rule of evidence providing that various residency periods are "prima facie evidence" of domicile for purposes of enforcing foreign divorce decree).

Although the constitutionally protected right of privacy extends to personal decisions affecting procreation,<sup>172</sup> the exigencies of space living may support the imposition of fines or other sanctions for begetting or bearing children without the ability to provide adequate support. The inability to support children may also be grounds for the abridgment of parental custody rights,<sup>173</sup> with child custody being delegated to adults not related biologically but willing to function as parents.

While it may decline to approve a particular type of sexual relationship, the governing authority may wish to recognize certain "family-units"—voluntary associations of adults who assume responsibility for bearing, begetting, or participating in the raising of a child. Such "family unit" members should have joint custody rights and obligation of support. The government might decline to resolve custody or support contribution matters between members of the family unit, so long as a child is in fact being cared for.<sup>174</sup> However, given a strong interest in assuring the child's maximum development and adaptation to the space living environment, the authority might reject the traditional state policy of non-interference, and enforce the support and care obligations among members of an intact "family unit."

The standard for child custody decisions should be the "best interests of the child," a goal served by preservation of the psychological continuity of family relationships and the physical continuity of environment, and by opportunity for optimal participation in the community. If the child's psychological or physical welfare would be significantly and adversely affected by leaving with his or her parents, the custody preference should be with "family unit" members remaining in the space environment.<sup>175</sup> In cases in which a child is old enough to express a preference and make a contribution to the community, the high cost of raising a child in the permanent space environment should be weighed in favor of that child's remaining in that environment.

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<sup>172</sup> See *supra* notes 15-18 and accompanying text.

<sup>173</sup> Cf. *In re Adoption of Children by D.*, 61 N.J. 89, 98-99, 293 A.2d 171, 175-76 (1972) (in determining whether parental rights should be terminated, court considers the failure to assist child financially when able to do so).

<sup>174</sup> This approach is consistent with both current practice in the United States and the emphasis on nonintervention by child development specialists. See GOLDSTEIN, *supra* note 60, at 105-11.

<sup>175</sup> Cf. Indian Child Welfare Act of 1978, 25 U.S.C. §§ 1901-1963 (1982) (tribal courts given jurisdiction over custody of children residing on reservations). *But cf.* Barash, *The Indian Child Welfare Act of 1978: A Critical Analysis*, 31 HASTINGS L.J. 1287 (1980) (Act does not deal with custody problems effectively).

The governing authority should permit and enforce contracts between adults with respect to sharing of income, property division, and duties arising out of any financial or social partnership. Only contracts meeting the requirements of a settlement's civil law should be so enforced. Hence, if the local law requires property agreements to be in writing, an oral contract concerning property division made by adults, whether or not involved in sexual relationships, would not be enforceable. There should be no specially designated "marital" or "quasi-marital" property; property held in title by more than one person, whether or not such title-holders are involved in a sexual relationship or members of a "family unit," should be presumed to be jointly held.

Contracts between members of "family units" or persons involved in a sexual relationship should not be construed differently from other contracts; there should be no presumption of gift or fiduciary responsibility. Contracts whose effect is to free an adult from a legally enforceable obligation to support a child or economically dependent person should be invalid as against public policy.<sup>176</sup> This policy would not preclude the governing authority from relieving an individual from such an obligation where, as discussed above, other members of the child's "family unit" or another adult is willing and able to assume the responsibility, and where a transfer of custody would be in the child's best interests.

The governing authority should neither authorize nor discourage the celebration of religious ceremonies of marriage within the permanent space living environment. Persons performing such ceremonies, however, would be required to inform the parties, both orally and in writing, that the religious marriage does not entitle them to any rights or impose upon them any duties enforceable by the governing authority, and that the basic obligation of care and support for any children they may beget or bear cannot be modified by any agreement, express or implied, written or oral, between them.

## VII. CONCLUSION

Predicting the future is at best a dubious pastime; attempting to anticipate the legal needs of a people as different from present-day human beings as "spacekind" verges upon folly. Yet our own planet-bound history has demonstrated both an enduring need for the bene-

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<sup>176</sup> Cf. CAL. CIV. CODE § 4811(a) (West Supp. 1984) (court has power to modify or revoke provisions of settlement agreement incorporated into child support orders). See generally H. KRAUSE, CHILD SUPPORT IN AMERICA (1981) (discussing child support laws).

fits of sexual and family relationships—and the almost infinite variety of forms such relationships take. As human beings attempt the once unthinkable transition from life on Earth to life in space, it is permissible to hope that we will take with us and build upon the best that Earth-based experience has given us. Any system of law worthy of so stringent a test will acknowledge both the human capacity for love and adaptability of spirit.