THE LEGAL IMPLICATIONS OF McGILL'S HIGH ALTITUDE RESEARCH PROJECT

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From January 25 to February 1, 1963, the first series of Martlet I vehicles was successfully launched by McGill University to an altitude of some fifty miles.[1] The launching method involving the shooting of a projectile through a 16.4" 140-ton gun marked a spectacular innovation in the expanding art of space exploration. It will be recalled that the idea of launching spacecraft with gun power was envisaged by Jules Verne in his famous novel "De La Terre A La Lune" written in 1865.[2] While the Martlets are not designed to reach the Moon, they are, no doubt, a step toward the fulfilment of Verne's anticipation.

"Martlet" is the code name for a series of vehicles employed in the High Altitude Research Project (HARP) of McGill University, a program for the study of atmospheric composition at altitudes beyond 125 miles by using non-assisted or rocket-assisted vehicles.[3] The launching facility employed is a vertical firing gun, a 16.4" caliber smooth-bore naval rifle.[4] The gun is capable of sending payloads weighing up to approximately 500 lb. to an altitude of 60 miles, and 200 lb. payloads to about 120 miles.[5] It is intended eventually to propel rocket-assisted vehicles up to several thousand miles. In fact Martlet IIIA already has a rocket motor and is capable of reaching

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1 Time, New York, February 8, 1963, p. 9. Project HARP (High Altitude Research Program), Description and Status, Report Rep. 62-5, prepared by the staff of the Department of Mechanical Engineering, McGill University, Montreal, 1962. For a comprehensive survey both of governmental and private space research activities see COSPAR Information Bulletin, No. 16, Dec. 1963, special issue.

2 Encyclopedia Britannica, 14th ed. vol. 23, p. 86.

3 Project HARP, *op. cit. supra* note 1, p. 2-3.

4 These guns were manufactured in 1921 and were used for coastal defense purposes in the United States. In late 1961 McGill University undertook the program, and the installation of the gun was completed by January 1963. The assembly of the gun consists of a 68 foot barrel-chamber. *Id.* p. 11-12.

5 *Id.* p. 4.

an altitude of 300 miles.[6] McGill is planning to develop two-stage Martlet IV vehicles with capacity of placing a 50 lb. payload in orbit.[7]

Martlet I, II and III vehicles were designed and manufactured by Canadian companies under a direct contract with McGill University,[8] and were then shipped to the launching base on the island of Barbados. While sponsored by McGill University,[9] the project enjoys the co-operation and assistance of the United States Army and local Government of Barbados. Two 140 ton guns, mounts and back-up devices, transportation of equipment, technical support, participation, the major financial support of the payload, the manufacturing of the vehicles, and range firing cost, have all been provided by the United States.[10] The Government of Barbados has contributed a launching site on the south-east shore of the island,[11] as well as labour and certain equipment for the operation.

The Canadian Government has not yet joined the program in any capacity.[12] As far as it could be ascertained, it has no official contact with the Governments of Barbados, the United States, or the United Kingdom on the subject. Informal contact was made with the Premier of Barbados by the Dean of the McGill University Faculty of Engineering [13] who received authorization from the board of Governors

[6] Project HARP, McGill University, *Report on the First Twelve Firings and Status as of July 30, 1963*, Report 63-5. November 1963, p. 1-2.

[7] It would be a 3000 lb. vehicle some 14 ft. long with a 16.4 in. diameter equipped with flip-out fins and a solid-state guidance system.

[8] Martlet I vehicles were built by Aviation Electric Ltd. Montreal. They were designed as first generation gas seeding vehicles for the 100 km altitude range. Martlet II vehicles were manufactured by Industrial Machining Co. and Hereons Co. and tested in June 1963, *id.* p. 9-11. Martlet III vehicles were built by Canadian Arsenals Ltd. and scheduled for September 1963 and the early months of 1964.

[9] The launching and control over the telemetry are all under the operation of McGill University, independent from the United States or Barbados authorities.

[10] For details see note 1, Project HARP, p. i-iii. Report of the 1963 (*supra* note 4) acknowledged that, "The staff of McGill University working on Project HARP are deeply indebted to the various agencies of the United States Army who provided the major proportion of the financing, material, logistic support and technical advice essential to the success of the project." A reliable source disclosed that the financing support has reached a half million dollars.

[11] Barbados, Island, Atlantic Ocean. Located about 100 miles east of St. Vincent at 59°37' West Longitude, 13°4' North Latitude. The land has a maximum length of 21 miles and an area of 166 square miles.

[12] Although the inspection Services, Department of National Defense, assisted in some phases of the ballistic and rocket development program.

[13] Exchanges of letters, June 1961 to July 1961, between Premier of Barbados, Perm. Secretary, Ministry of Agriculture, Lands, Fisheries and Public Buildings and Dean Mordell. A formal Order-in-Council covered HARP under the general provision.

at McGill (summer 1961) for the undertaking. The Governor General of Barbados was informed of the United States Army participation and no objections were raised. The relationship between McGill and the United States Army is regulated by a contract under which the Army has access to all research information obtained, but has no direct control over the project.[14] The title to the gun was transferred to the University four days before the first launching and was later registered with and licensed by the local Government of Barbados.[15] A considerable amount of insurance was obtained for the gun and subsequently for each gun-shot.[16]

The vehicles launched and the actual launchings are not registered with any State or international organization and the vehicles themselves have no identification markings of any kind. However, each gun bears three crests: those of McGill University, the United States Army Research Office, and the United States Ballistic Research Laboratories. The impact area — ranging from 20 miles to 100 miles, in accordance with different launching purposes — is located on the high seas near Barbados.[17] Before each launching, ships and aircraft are notified of the location of the danger area, which is kept under constant surveillance by a McGill University radar unit.[18]

Even though it involves a relatively small investment in terms of both equipment and man power, Martlet has already proved its worth, both economically [19] and technically,[20] for high altitude research. The

[14] A contract made through the Canadian Commercial Corporation.

[15] About January 21, 1963.

[16] It is insured by the Lloyds of London for 8,000 dollars per gun-shot.

[17] Trajectories of Martlet IIA firing number 10-11 and 12 is given here:

Shot	Gun elevation	Time of flight	Altitude	Impact area
10	83°	230 sec.	209,000 ft	89,000 ft
11	86°	261 sec.	276,000 ft	74,000 ft
12	87.5°	289 sec.	340,000 ft	51,500 ft

op. cit. supra note 6. The June 19 test shot the vehicle to 34,000 ft altitude with a muzzle elevation 80 degrees and impacted 100 miles away.

[18] The local newspapers made public the danger areas one day before the launching. During the launchings local police officers use their motor boat to survey the areas and keep fishing boats off the areas. The air is checked by the airport control tower which is closely contacted with McGill University radar unit.

[19] In the United States the cost of boosting a package by rocket to an altitude below 800 km is $1.25 per payload pound per mile. However, in the case of Martlet it costs only 21 cents. The technique can be employed to send a probe to an altitude of 150 miles with a payload of 50 lb. for only $1,500 — far cheaper than current probes.

[20] The major technical features include very small dispersion on flight altitude, so that a specified and prescribed area can be studied and combined with a small impact area. *op. cit supra* note 1, p. 16.

project has thus broadened the perspectives of non-governmental space activities, and will likely stimulate an increase in activities of this type. Smaller nations without large facilities may also be able to orbit satellites using the inexpensive gun-launch technique.

The Hypersonic Propulsion Laboratory of McGill University has suggested that a study of the "Gun Launched Hypersonic Ramjet" could by made by using the gun to launch hypersonic ramjet vehicles at Mach numbers ranging from 3.3 to 7.[21] It is hoped that these vehicles will be able to operate at an altitude of 300 miles with a down range impact area at 1250 to 1400 miles from launching site on the high seas.[22] In fact, since the gun can be employed in other types of scientific study, many organizations may be interested in its potential uses.[23]

The Martlet experiments are in many respects unique, not only from the technical standpoint, but also from the legal point of view. First, the project differs from the joint space undertakings such as *Ariel*[24] and *Alouette*[25] where the Government of the United States provided the launching facilities and the Governments of the United Kingdom and Canada the satellites.[26] Project HARP is conducted by a private entity (McGill University) but it also involves to an important extent the Government of Barbados, and the United States Army Research Office (USARO). McGill University, as a Canadian legal person, is always, at least in theory, subject to the control of Canada. Barbados is a territory of Great Britain, and the USARO is an American government agency. Therefore, from the standpoint of international law, three States are involved, namely Canada, the United States, and the United Kingdom.

Secondly, McGill University is preparing for 300 "space shots" — three per day for one hundred days firing throughout the early months of 1964. Although these experiments involve flights of short duration, because of their frequency there is a high possibility of causing damage and/or injury in the air-space or on the surface of

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[21] Molder, Salter, and Valenti, *Performance Study Gun Launched Hypersonic Ramjets*, Report 63-4, Hypersonic Propulsion Laboratory, Department of Mechanical Engineering, McGill University, Montreal, June 1963, p. 1-4.

[22] *Id.* p. 21 and figure 23 given in that page.

[23] The Institute of Aerophysics of the University of Toronto is an example of its potential user.

[24] First medium-scale enterprisory activity between the Great Britain and the United States.

[25] Joint enterprise between the United States and Canada.

[26] See Seventh Semi-annual Report to Congress, NASA, January 1 - June 30, 1962. Washington 1962, pp. 47, 116. See also McDougal, Lasswell, Vlasic, *Law and Public Order in Space*, 1963, p. 8 fn. 12 and p. 877.

adjacent sea. Therefore, the danger is potentially greater than for high altitude activities such as launching of rockets, missiles and satellites.

Thirdly, since the use of vertical firing guns for high altitude exploration is a novelty without precedent, still largely unknown to the public, scant attention has so far been given to its legal implications. It is pertinent to note, in this connection, that the high altitude experiments involving missiles and rockets generally are carried out within a State territory, or on distant high seas; they do not, therefore, seriously interfere with the activities of other nations. By contrast, Martlet experiments are carried out in the coastal areas which are frequented by aircraft and ships. If this technique becomes widely adopted, such experiments may create extensive interference with coastal air and sea transportation. This multiple-launching situation can be described as a "traffic jam". Although Martlets so far launched would not qualify as spacecraft, Martlet IV, soon to be launched, will have orbital capability and for this reason the experiments should be considered in the light of the legal principles governing the activities of States in the exploration and use of outer space.

The practice pursued by McGill University thus raises certain important legal questions which may conveniently be examined under the following headings:

(1) Lawfulness of Martlets' activities in the context of the "public order" of the high seas;

(2) Responsibility and liability for injuries caused by Martlets;

(3) Registration and supervision of Martlets.

(1) Lawfulness of Martlets' Activities in the Context of the "Public Order" of the High Seas

As all the Martlets are designed for impact on the high seas, it is pertinent to ask whether or not this practice falls within the scope of activities considered permissible by international law. A companion question relates to the lawfulness of closing temporarily certain areas of the high seas for purposes connected with the launching and recovery of Martlets.

According to Article 2 of the Geneva Convention on the High Seas of 1958, all States are authorized to fly over the high seas and to use them for navigation, fishing, the laying of submarine cables and pipelines.[27] In addition to these, Article 2 of the Geneva Conven-

[27] Convention on the High Seas, U.N. Doc. A/Conf. 13/38 pp. 135-139 (Doc. A/Conf. 13/L. 53). Conference on the Law of the Seas, 1958, held in Geneva.

tion permits also the exercise of other freedoms "recognized by the general principles of international law", stipulating, however, that all these freedoms should be exercised with reasonable regard to the interests of other States in their exercise of the freedom of the high seas.[28] In fact States have traditionally used the high seas for purposes such as naval gnnnery practices and manoeuvres, and more recently for nuclear tests[29] carried on under the claim that "that which is not expressly prohibited is permitted".[30] As a result of such exclusive uses, vast oceanic areas have been declared dangerous,[31] and temporarily closed, both for the security of the States conducting exercises and for the general safety.[32] Space activities have also extended from land to the high seas for purposes of testing, recovery and launching of spacecraft. Vessels and aircraft were warned not to approach designated areas. Some of these areas were as wide as 40,000 square miles.[33]

The present impact area of Martlets, ranging from 20 miles to 100 miles, is situated on the high seas off the coast of Barbados. Appropriate preventive measures have been taken before each launching and have been very well observed.[34] Moreover, there is no complaint so far.

The temporary exclusive use of the high seas for nuclear tests and gunnery practices, apparently permissible under international law,[35] is certainly more serious an exercise of the freedom of the high seas than temporary closure for the launching and recovery of spacecraft, an activity clearly for peaceful purposes and for the benefit of all mankind. The principle of freedom of the high seas would be unnecessarily restricted if it were interpreted so narrowly that even

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[28] *Ibid.*

[29] See McDougal and Associates, *Studies in World Public Order*, 1960, pp. 766, Cf. Margolis, *The Hydrogen Bomb Experiments and International Law*, (1954-55) 64 Yale L.J. 629, (1955).

[30] The Lotus (1927) Series A/10, pp. 18, 28, 31. L. C. Green, *The Geneva Conventions and the Freedom of the Seas*, 12 Current Legal Problems, p. 242, 1959.

[31] *Op. cit supra* note 29, p. 768. The United States and the United Kingdom have declared considerable areas in the Pacific Ocean as temporary danger zones. See also Schwarzenberger, *The Legality of Nuclear Weapons*, 11 Current Legal Problems, p. 288, 1958.

[32] It may be argued that this is not exclusive use, for States never have the intention of appropriating those areas. However, it is doubtful if other States can share those areas with the claimant States, because some have become polluted.

[33] McDougal, Lasswell, Vlasic, *Law and Public Order in Space*, 1963, p. 298-299.

[34] *Supra* note 18.

[35] McDougall and Burke, *The Public Order of the Oceans*, Yale (1962), pp. 771, 772.

the temporary closing of a small area on the high seas, for purpose of scientific space research, would be deemed unlawful. In consequence, it may be stated that the Martlet experiments, as long as adequate safety measures have been taken for the protection of third parties, represent a lawful use of the high seas. However, should this kind of temporary use become more frequent so as to cause serious interference with the freedom of navigation and fishing on the high seas, it is submitted that the legality of each particular activity should then be judged in the light of the principle of reasonableness.[36]

(2) Responsibility and Liability for Martlets

Although the Martlet program involves peaceful scientific research, it is not without hazards. Accidents might occur outside of the island of Barbados, on and above the high seas, or elsewhere. If damage does result, the question arises as to who bears the responsibility and the nature and extent of liability. It seems pertinent to examine these issues from the standpoint both of the relevant judicial decisions, such as the Trail Smelter Arbitration and Corfu Channel cases, and of the recent unanimously adopted United Nations Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.[37]

Of particular relevance to the problem are decisions in the Trail Smelter and Corfu Channel cases. In the Trail Smelter Arbitration case, it was expressly declared that "... under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or properties or persons therein".[38] In the Corfu Channel case, it was held that every State has an obligation not to allow knowingly its territory to be used for acts contrary to the rights of another State.[39] It may be stated as firmly established in international law that a State which either intentionally or through culpable negligence does

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[36] Details see *Ibid.* pp. 758-765.

[37] Resolution adopted by the General Assembly of the United Nations, U.N. Doc. A/5656, 13 December 1963. Hereafter referred to as the Declaration.

[38] Trail Smelter Arbitration between the United States and Canada decided March 11, 1941. U.S. Department of State Arbitration Series 8, pp. 36-37. U.S. Treaty Series, no. 983, A.J., 30 (1936) Suppl. p. 163. Detail of the case see J. E. Read, *The Trail Smelter Dispute*, 1963 Canadian Yearbook of International Law, Vancouver, pp. 213-229.

[39] The Corfu Channel case, Albania and the United Kingdom, International Court of Justice, 1949, I.C.J. Reports 1949, 4, 22.

not comply with this duty is guilty of an international deliquency for which it must bear responsibility. If damage is caused to another State as a result of an act committed in its territory, this State has the responsibility of reparation.[40]

The principle, however, laid down by the Trail Smelter and Corfu Channel cases only extends to "sic utere tuo alienum non laedas" (you should use your property so as not to cause injury to another). Certainly, this principle should apply also when the territory is used with permission by foreign States and nationals. In other words, the State which permits its own territory to be used by non-nationals still must bear primary responsibility.

The regime of responsibility laid down by the Trail Smelter case directly referred to harmful results caused only in the territory of another State. This principle could properly be extended to include damage taking place on and above the high seas, and in the outer space.[41] It would mean that no State has a right to use or permit the use of its territory in such a manner as to cause damage or injury to another, irrespective of the place of injury and damage.

The Government of Barbados is responsible only to the Governor who is a servant of the British Crown.[42] Hence in international law, the United Kingdom is responsible for the activities of the Government of Barbados. In view of the Corfu Channel decision, which prescribed that no state has the right to use or permit the use of its territory in such a manner as to cause injury to the territory of another or the property or persons therein, it seems that the Government of the United Kingdom will be responsible in international law for injuries caused on or above the high seas by Martlet experiments.

In search for principles applicable to this problem the emerging law of space should also be considered. Thus, Article 8 of the United Nations Declaration states that,

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[40] Oppenheim, *International Law*, vol. 1, 8th ed. 1955, p. 338.

[41] A similar suggestion is found in Peider Könz, *The 1962 Brussels Convention on the Liability of Operators of Nuclear Ships*, 57 A.J. I.L. no. 1, January 1963, pp. 105-106. It was stated like this: "In connection with the rule of channeling, some question arises as to whether the Convention should be interpreted as a bar to the responsibility of states which might be incurred under customary public international law, e.g., by an extension of the Trail Smelter doctrine to a licensing state which authorized a nuclear ship to be operated without proper safety precautions".

[42] He holds only a limited authority from the Crown and cannot be regarded as a viceroy; he does not possess general sovereign power. His authority is derived from his commission and confined to the powers thereby expressly or impliedly entrusted to him. It is doubtful if he has the power to approve the lease of the launching site. See Halsbury's Law of England, 3rd ed. vol. 5, pp. 616 and 618.

"Each State which launched or procured the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage to a foreign State or to its natural or juridical person by such object or its component parts on the earth, in air space, or in outer space." [43]

The Declaration thus envisages four potential subjects of responsibility: the launching State, the State which procures the launching, the State from whose facility an object is launched, and the State from whose territory an object is launched.

If Article 8 is read in connection with Article 5 of the Declaration,[44] it can be seen that the "State" alone bears responsibility, whether the damage is caused by governmental activity or otherwise. Within this context it is difficult to find any rules which would apply to Canada in the case of Martlet. Unless the term "each State" is interpreted to include Canada as a juridical guardian of its nationals, the Canadian Government cannot be held responsible. The United Kingdom from whose dependent territory Martlets are launched appears as a more topical subject of responsibility.

The most ambiguous phrase in the Declaration is probably "the State which procures the launching". "Procures" is a "comprehensive word of many meanings" [45] and can be defined as "to initiate a proceeding; to cause a thing to be done",[46] or "to bring about," to "put forth or employ care or effort, to endeavour labour; to use means".[47] Therefore, if "procure" is interpreted as "to put forth or employ care of effort", "to assist", it may be inferred that the United States is also responsible for damage caused by Martlets. Should litigation arise in the future it is submitted that both the United States and the United Kingdom may each be held fully liable for the injuries

[43] *Supra* note 37. It may be helpful at this point to recall that the *Draft Declaration of Principles Relating to the Exploration and Uses of Outer Space*, submitted by the United States in 1962 to the United Nations, proposed that, "A State or international organization from whose territory or with whose assistance or permission a space vehicle is launched bears international responsibilty". See U.N. Doc. A/C 1/881 December 8, 1962.

[44] Article 5 deserves to be cited in full : "States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration. The activities of non-governmental entities in outer space shall require authorization and continuing supervision by the State concerned. When activities are carried on in outer space by an international organization, responsibility for compliance with the principles set forth in this Declaration shall be borne by the international organization and by the States participating in it".

[45] *Corpus Juris Secundum*, vol. 72, 1951, p. 1206.

[46] Black, *Law Dictionary*, 4th ed. 1951, p. 1373.

[47] *The Oxford English Dictionary*, vol. VIII, Oxford, p. 1417.

caused by Martlet experiments. As far as the nature of this liability is concerned, the Declaration offers no clues. However, in view of the hazardous character of activities involved, it is safe to assume that absolute liability would apply.[48]

(3) Registration and Supervision of Martlets

In 1961 the United Nations General Assembly passed a Resolution recommending the registration of launched spacecraft with the Secretary General.[49] Both the United States and the Soviet Union have complied with the Resolution.[50] Owing to the ambiguous wording of the Resolution, it is not clear if all types of spacecraft should be so registered and what kind of information States are expected to submit. It is, however, a general practice that only spacecraft with orbital capability are registered.

This recommendation has been broadened and more expressly stated in Article 5 of the United Nations Declaration,[51] which on the one hand, recognizes the legality of non-governmental activities,[52] and on the other hand, prescribes that such activities should have "authorization and continuing supervision by the State concerned".[53] This provision implies the necessity of an organized method of national supervision and control over non-governmental space activities

[48] Limited Liability and minimum exoneration of liability are found in the aviation law and nuclear energy laws, for instance, Paris Convention (Convention of Third Parties Liability in the Field of Nuclear Energy, 1960) limits the compensation to 15 million u/a and its supplementary Convention of 1963 limits to 120 million u/a. The Vienna Convention (Convention on the Civil Liability For Nuclear Damage, 1963) limits to U.S. $5 millions (Article 5). The Brussels Convention (Convention on the Liability of Operator of Nuclear Ship, 1962) limits to 1,500 millions (Article 3).

[49] United Nations General Assembly 1721 (XVI), December 30, 1961, International Co-operation in the Peaceful Uses of Outer Space, Section B. Detail discussion see McDougall, Lasswell, Vlasic, *op. cit.*, pp. 573-574.

[50] Effects of tbe United Nations Resolution see M. M. Whiteman, *Digest of International Law*, vol. 1, p. 68, 1963. J. C. Cooper, *Current Developments in Space Law*, paper submitted for presentation at the Southestern Regional Meeting of the American Society of International Law, 1963. Johnson, *The Effects of Resolutions of the General Assembly of United Nations*, The British Year Book of International Law, 1955-1956, pp. 121-122.

[51] *Supra* note 44.

[52] Serious disagreement on the extent to which free enterprise may participate in the exploration and use of outer space emerged during the second session of the Legal Sub-Committee on the Peaceful Uses of Outer Space. See U.N. Doc. A/AC.105/SR. 9; A/AC.105/C.2/SR. 7; A/AC.105/L. 2; A/C.1/879; A/AC. 105/c./2SR. 8; concerning views of each member State on the debates of the subject.

[53] Second part of Article 5 of the Declaration.

which is to be achieved according to Article 7 by the institution of a national registration. Article 7 of the Declaration thus states:

> "The State on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and any personnel thereon, while in outer space. Ownership of object launched into outer space, and of their component parts, is not affected by their passage through outer space or by their return to the earth. Such objects or component parts found beyond the limits of the State of registry shall be returned to that State, which shall furnish identifying data upon request prior to return."

It may be observed, furthermore, that according to Article 7, entry into national registry serves as evidence of ownership of spacecraft and may eventually support the claim for the return of the object fallen beyond the limits of the State of registry.[54] The need of registration becomes more compelling in the case of non-governmental spacecraft, because they might lack clear evidence of ownership and certainly require regulation.

Registration and supervision have long been adopted for ships, since they operate in the "common domain" of high seas where competence is shared. Ships sailing on the high seas are required to be registered in a State whose flag they fly and that State is responsible for their activities wherever they are.[55] The same rules apply to aircraft flying over the high seas,[56] and they include registration and supervision of aircraft, enforcement of regulations and punishment of violations.[57] Activities on the high seas such as fishing, laying submarine cables and pipelines, are also subject to State regulation.[58] It is therefore submitted that as a general principle of international law, any activities carried on or above the high seas should be subject to State regulation and supervision.

As far as the Martlet experiments are concerned, the launchings have been carried out without special authorization or supervision by any State. The vehicles themselves are not registered and bear no indication of nationality. At present, it seems that there is no need for their registration with the United Nations since they are not capable of orbital flight. The requirement of registration will not apply at least as long as the flight of Martlet is limited merely to the upper regions of the atmosphere. However, in order to comply with the general principles of international law relating to the respon-

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[54] Article 7 of the Declaration.

[55] Article 4 of the Convention on the High Seas of 1958, *op. cit. supra* note 27.

[56] Article 8 of the Convention on International Civil Aviation stated that, "Over the high seas, the rules in force shall be those established under this Convention".

[57] First part of the Article 12 of the Convention on International Civil Aviation.

[58] Article 1, 3 and 14 of the Convention on Fishing and Conservation of the Living Resources of the High Seas, 1958.

sibility of States for activities on the high seas and in particular with the spirit of the Declaration, it is desirable that some State involved in the experiments formally undertake to "authorize" and "supervise" the Martlet launchings. Perhaps the Government of Barbados (or of the United Kingdom) would be the proper choice for these functions, as it is their territory which is used for activities having potential (and actual) impact upon the "common domain" of the high seas.

Canada has neither "launched" nor "procured" the launchings; its territory and facilities are not used in the experiment. Yet McGill University is a Canadian corporate body. What role, if any, should the government of Canada assume? When Martlets are put in orbit, in order to retain jurisdiction and secure control over them according to Article 7 of the Declaration, Canada would no doubt be the logical place of registration. However, even before that stage is reached, it would seem desirable to establish some kind of normal link between these experiments and the Government of Canada.

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CASE and COMMENT