

The Development of International Law with Respect to Trans-Boundary Water Resources: Co-operation for Mutual Advantage or Continentalism's Thin Edge of the Wedge

I. A. McDougall

Osgoode Hall Law School of York University, Imcdougall@osgoode.yorku.ca

Follow this and additional works at: <http://digitalcommons.osgoode.yorku.ca/ohlj>
Article

Citation Information

McDougall, I. A.. "The Development of International Law with Respect to Trans-Boundary Water Resources: Co-operation for Mutual Advantage or Continentalism's Thin Edge of the Wedge." *Osgoode Hall Law Journal* 9.2 (1971) : 261-311.
<http://digitalcommons.osgoode.yorku.ca/ohlj/vol9/iss2/2>

This Article is brought to you for free and open access by the Journals at Osgoode Digital Commons. It has been accepted for inclusion in Osgoode Hall Law Journal by an authorized editor of Osgoode Digital Commons.

The Development of International Law with Respect to Trans-Boundary Water Resources: Co-operation for Mutual Advantage or Continentalism's Thin Edge of the Wedge?

I. A. McDougall*

INTRODUCTION

The proposition to be tested by this paper has been summarized as follows:

"There is no doubt that the International Joint Commission has successfully discharged the high functions entrusted to it by the Boundary Waters Treaty. It has acted successfully as judge, advisor and administrator for two great neighbours during a period of unparalleled expansion when conflicts of interest were bound to arise. In playing its triple role the Commission has developed techniques of continuous consultation which are a model for the world . . . [it has] shown the peoples of North America and the world at large that neighbours can with goodwill, solve even their most serious difficulties through acceptance of the rule of law."**

The conclusion adopted by the paper is essentially the null hypothesis; namely, that the International Joint Commission, as a means of conflict resolution with respect to the use and development of trans-boundary waters, has proved ineffective, and probably to the disadvantage of Canada in the long run. It is suggested that, not only has the Commission failed to develop rules of law acceptable to the two entities as guiding principles, but has served to only obscure the founding legal relations laid out by the *Boundary Waters Treaty* in 1909.

It is suggested that this conclusion has general significance to Canada in two respects. First, the failure of the Commission to adhere to pre-existing agreed principles of law has resulted in vast jurisdictional encroachments upon the Canadian right to develop resources of internal origin for the maximum benefit of its citizens. The *Columbia River Treaty* and the recent U.S. water export proposals are eloquent examples to the point. Second, to the extent that Canadian jurisdiction is eroded (under the deceptive cloak of the regularized procedures of the commission) over domestic water supplies, there is a concomitantly lessening ability to direct secondary resource development. For example, where Canadian power interests are sacrificed in an agreement such as the Columbia, the Canadian ability to entice industrial locations by firms budgeting large amounts on electric power is obviously reduced. This is also true in those cases where Canadian control over consumptive uses may be of importance to domestic agrarian sectors but is forfeited as a consequence of downstream pressure from the U.S. entity.

* A member of the 1970-71 Graduating Class at Osgoode Hall Law School of York University.

** L.M. Bloomfield and G.F. Fitzgerald: *Boundary Waters Problems: Canada and the United States*, The Carswell Co. Ltd., Toronto, 1958, at 63.

The paper is organized into nine sections. It begins with a brief outline of the International Joint Commission's jurisdiction. This is followed by a discussion of the *Boundary Waters Treaty* and the early Canadian objections. Sections three and four deal with the highlighting negotiations concerning trans-boundary waters from 1909 to the present. The change in Canadian position with respect to the second article of the *Boundary Waters Treaty*, and the erosion of its effectiveness as a rule of law are considered. The fifth section outlines the concomitant rise in status of a principle known as the "doctrine of equitable apportionment". The obscurity of its meaning, its connection with the complementary doctrine of prior appropriation, and its more general implications with respect to both the development of international law, and the development of water-sharing agreements have been considered here. The sixth and seventh portions of the paper concern themselves with the mounting pressure for a continental water distribution scheme as a means of tapping the purported Canadian "reserves", and a number of the more significant problems that are associated with present proposals respectively. It is argued in light of these issues, and in light of the ambiguously defined national prerogatives under present law, that there is an obvious advantage to a firm re-assertion of the original provisions of the *Boundary Waters Treaty* for Canada.

Section eight deals with two vehicles which could accomplish this purpose; the proposed Shuswap-Okanagan Diversion, and the Skagit Valley dispute. The ninth and final portion contains a summary of the paper's recommendations and conclusions.

I

THE INTERNATIONAL JOINT COMMISSION

The International Joint Commission (hereafter referred to as simply I.J.C.) was established by *Article VII* of the *Boundary Waters Treaty*¹ and is bound to the guiding principles spelled out by *Article VIII*. Essentially these are as below:

"The High Contracting Parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

The following order of precedence shall be observed among the various uses enumerated hereinafter for these waters, and no use shall be permitted which tends materially to conflict with or restrain any other use which is given preference over it in this order of precedence:

- (1) Uses for domestic and sanitary purposes;
- (2) Uses for navigation, including the service of canals for the purposes of navigation;

¹ Treaty Relating to Boundary Waters and Questions Arising Along the Boundary between the United States and Canada, signed at Washington, January 11, 1909; ratification advised by Senate March 3, 1909; ratified by Great Britain March 31, 1910; ratified by President April 1, 1910; ratifications exchanged at Washington May 5, 1910; proclaimed May 18, 1910. 36 stat. 2448; TS 548; III Redmond 2607, British Treaty Series 1910, No. 23; Treaties and agreements affecting Canada, in force between His Majesty and the United States of America, 312 Kings Printer, Ottawa, 1927.

(3) Uses for power and for irrigation purposes.

The foregoing provisions shall not apply to disturb any existing uses of boundary waters on either side of the boundary."²

The I.J.C. has two types of jurisdiction: it has compulsory jurisdiction by virtue of *Article III and IV*³ and may acquire jurisdiction by voluntary consent of the High Contracting Parties per *Articles IX and X*⁴. In relation to *Article III and IV* commission rulings are final. *Article IX* on the other hand only confers the power to investigate, study, report, and make recommendations. While *Article X* provides for arbitration by the commission over any question referred it, this provision has yet to be exercised.

The commission has concentrated its efforts upon the following subject headings since its creation:

- (1) approval of hydroelectric, flood control, and reclamation and irrigation storage structures which entail flood damage upstream across the frontier
- (2) approval of hydroelectric structures and navigation improvements on boundary waters
- (3) applications for approval of assorted minor river works
- (4) water appropriations from boundary and trans-boundary waters: both intra and inter-basin
- (5) investigations of various types (eg: lake levels, Great Lakes water pollution, etc.)⁵

Of concern to this paper are those applications which concern trans-boundary waters, which will principally fall under subject headings (1) and (4). It is within these areas that most conflict has developed. In the case of trans-boundary waters it evidently has been less easy to demark and isolate areas of mutual concern and interest than has been true of boundary water disputes. Consequently the I.J.C. applications concerning trans-boundary waters have been characterized by sharp conflicts of opinion between the two Parties, and have resulted in a cumulative erosion of Canadian sovereignty vis-à-vis water resources of domestic origin. The validity of this contention is perhaps best illustrated by a review of the highlighting disputes between the two countries, and their ultimate impact upon the Canadian position, commencing with the *Boundary Waters Treaty* itself.

² The Preliminary article of the treaty defines boundary waters as:

"the waters from main shore to main shore of the lakes and rivers and connecting waterways, or the portions thereof, along which the international boundary between the United States and the Dominion of Canada passes, including tributary waters which in their natural channels would flow into such lakes, rivers, and waterways, or waters flowing from such lakes, rivers, and waterways, or the waters of rivers flowing across the boundary".

³ *Article II* requires that further uses or obstructions or diversions of a temporary or permanent nature of boundary waters shall be only made with the approval of the commission save as provided for by special agreements between the Parties. *Article IV* requires that neither Party obstruct boundary waters, trans-boundary waters at a lower level than the boundary, and waters flowing from boundary waters so as to raise the natural level of waters on the other side of the boundary without approval by the commission.

⁴ *Article IX* provides for voluntary submission of questions of difference to the commission who shall examine and report upon facts and make recommendations neither of which are binding at law. *Article X* is essentially the same as the Article above save for the fact of any decision reached being a binding arbitration. This article has *never* been employed.

⁵ For elaboration in each area see Bloomfield and Fitzgerald, *Boundary Waters Problems: Canada and the United States*, Carswell, Toronto, 1958.

II

THE BOUNDARY WATERS TREATY OF 1909

The establishment and empowerment⁶ of an International Joint Commission was but one of two or more objectives of the Canadian-American Boundary Waters Agreement.⁷ This treaty was realized in partial⁸ response to an international dispute of a decade earlier between the United States and the Republic of Mexico concerning the Rio Grande.⁹ The treaty can be viewed as an attempt by the United States to formally incorporate¹⁰ policy doctrines it enunciated over the course of its earlier negotiations¹¹ with Mexico as established Canadian-American international law.

The claims by the government of Mexico concerned the pre-emption of large agricultural tracts and a once flourishing townsit¹² as a direct consequence of upstream diversions from the U.S. section of the Rio Grande. In reply to formal protests by Mexico, the United States asserted the now famous *Harmon Doctrine*¹³:

"That the rules of international law imposed upon the United States no duty to deny to its inhabitants the use of the water of that part of the Rio Grande lying wholly within the United States, although such use resulted in reducing the volume of water in the river below the point where it ceased to be entirely within the United States, the supposition of the existence of such a duty being INCONSISTANT WITH THE SOVEREIGN JURISDICTION OF THE UNITED STATES OVER THE NATIONAL DOMAIN."¹⁴

In contrast with pre-existing precepts of international riparian law, the *Harmon Doctrine* represented the extreme of nationalistic positions. The somewhat unorthodox nature of the doctrine is apparent when viewed in comparison with *Professor Oppenheim's*¹⁵ summary in his treatise on international law.

"Just like independence territorial supremacy does not give a boundless liberty of action . . . a state is, in spite of its territorial supremacy, not allowed to alter the natural conditions of its own territory to the disadvantage of the natural conditions of the territory of a neighbouring state, for instance, to stop or divert the flow of a river which runs from its own into neighbouring territory."¹⁶

⁶ See Articles VII, VIII, IX, X, XI.

⁷ *Supra* note 1.

⁸ The treaty was also in partial response to a suggestion put forward by a Mr. J.S. Durvis who was one of the Canadian delegates to an irrigation conference in Denver, Colorado in 1894.

⁹ John Bassett Moore, *A Digest of International Law*, House Document No. 551, 56 the Congress 2nd Session, Washington 1906, volume 1, at 653 and *passim*.

¹⁰ In particular its second Article discussed *infra*.

¹¹ See *Harmon References Infra*.

¹² Both of which were themselves dependent upon irrigation waters derived from the river.

¹³ The doctrine is named after the then U.S. Attorney General, *Judson Harmon*.

¹⁴ *Judson Harmon* as cited by John Bassett Moore, *A Digest of International Law* at 653, 654 *supra* note 9. The emphasis is my own.

¹⁵ In 1909 Professor Oppenheim was a lecturer in Public International Law at the London School of Economics, prior to this being Professor Ordinaires of Law at the University of Basel, Switzerland.

¹⁶ Oppenheim as cited by Sir Robert Borden, *House of Commons Debates*, III Session, 11th parliament, 1910-11, vol. 1, at 903-904.

Oppenheim's formulation of the international rule was, in 1909, familiar to much of the United States and Canada wherein the Common law *riparian doctrine* still applied. *Halsbury* has summarized this rule as follows:

"Every riparian owner may divert the water of a stream for purposes in connection with his land, or for other purposes, but he is bound to return the water which he has diverted into the stream again before it leaves his land substantially undiminished in volume and unaltered in character; for a lower riparian owner, subject to the rights of an upper owner, is entitled to have the water flowing in the natural bed of the stream come to him unaltered in quality and quantity, and come to his land in its ordinary and accustomed channel."¹⁷

Both Canada¹⁸ and Mexico¹⁹ argued in favour of retaining the common law's doctrine for the limitation it imported with respect to upstream uses. The United States however remained adamant in its refusal to concede it international authority for, in Attorney General *Harmon's* own language:

"... what is really contended for is a servitude which makes the lower country dominant and subjects the upper country to the burden of arresting its development and denying its inhabitants the use of a provision which nature has supplied entirely within its own territory . . . in my opinion the rules, principles, and precedents of international law impose no liability upon the United States."²⁰

Viewed in one respect, the position asserted by the United States represented a quite reasonable attempt to extend its exclusive right over national territory so as to include water as well as land resources. Indeed, the Canadian negotiators in Washington appeared quite prepared²¹ to assume the American view of the matter. One of their number, *George C. Gibbons*,²² in a letter to *Sir Wilfrid Laurier*²³ noted:

"There is no limitation on the sovereign right of each nation over waters within its own territory any more than over its lands. As a matter of comity all that one State can ask of the other in regard to private interests injured by diversions in such other is that these should be protected."²⁴

The United States realized upon the objective of formally installing the *Harmon Doctrine* as the guiding principle of Canadian-American boundary water law with the completion and ratification of the *Boundary Waters Treaty of 1909*.²⁵ The relevant provision was the second article (hereafter referred to as simply *Article II*):

"Each of the High Contracting Parties reserves to itself or to the several State governments on the one side and the Dominion or Provincial governments on the other as the case may be, subject to any treaty provisions now existing with respect

¹⁷ *Halsbury's Laws of England*, 2nd edition, vol. 33, Butterworth and Co. London, 1939, at 559.

¹⁸ See *House of Commons Debates*, Session 1910-11, vol. 1, at 869-913 Debate on First reading of Boundary Waters Treaty.

¹⁹ John Bassett Moore, *A Digest of International Law*, *supra* note 9.

²⁰ Judson Harmon as quoted in Bloomfield and Fitzgerald, *Boundary Waters Problems: Canada and the United States*, *supra* note 5 at 43.

²¹ *Documents on Canadian External Relations*, Vol. I, 1909-1918 Department of External Affairs, Queen's Printers 1967 at 361-448.

²² George C. Gibbons was a former member of the International Waterways Commission (which was the I.J.C.'s antecedent) and played a prominent role in the treaty's negotiation and drafting. In this same letter Gibbons went so far as to cite Sir Robert Phillimore as authority for the proposition that Canada was in no position to dispute the U.S. claim to absolute jurisdiction over water in parity with its control of land.

²³ who was Prime Minister at the time.

²⁴ *Supra* Note 21, at 368.

²⁵ *Supra* note 1.

thereto, the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all waters on its own side of the line which in their natural channels would flow across the boundary or into boundary waters; but it is agreed that an interference with or diversion from their natural channel of such waters on either side of the boundary, resulting in any injury on the other side of the boundary shall give rise to the same rights and entitle the injured parties to the same legal remedies as if such injury took place in the country where such diversion or interference occurs: but this provision shall not apply to cases already existing or to cases expressly covered by special agreement between the parties hereto."²⁶

However when *Article II* and its antecedent, the *Harmon Doctrine* are closely examined it may be seen that they can confer upon the upstream riparian power considerably more than mere "exclusive jurisdiction and control"²⁷ In the economic sense they permit the upstream nation to 'underprice' the cost of development for, in the event of a diversion or storage project preempting downstream riparian interests, the nation that undertakes development need only consider those costs arising within its own jurisdiction. Given that there are downstream costs to the neighbouring jurisdiction such a situation implies that the real economic costs of development will be understated by way of shifting the diseconomies of development onto the downstream riparian.²⁸

Whether or not such a loss to the downstream state was a probable result of *Article II* was contingent upon first, the effectiveness of the remedy afforded the injured nation per the terms of the latter half of the Article, and second, (assuming that some effect can be given to the remedy) the level of riparian exploitation in the downstream state. For convenience²⁹ each of these factors is separately discussed below;

- (1) EFFECTIVENESS OF ARTICLE II'S REMEDY — to afford the injured party access to the courts of the injuring party's jurisdiction was, of itself, not a guarantee of those rights (ie: of compensation and enjoinder) appurtenant to the operation of the *riparian doctrine* at common law. This view was recognized by *Sir Robert Borden*³⁰ who was quick to draw attention to it when the treaty was presented to the House of Commons for the first reading in 1910:

"MR. BORDEN (HALIFAX) . . . but suppose the diversion has been authorized by a statute of the United States.

MR. PUGSLEY:³¹ Then I take it would be the duty of both countries, the United States government in this case . . . to make provision for the payment of any damages. That would be the obligation of each party under the terms of this treaty.

MR. BORDEN: If the minister's statement could be added as a rider to the treaty it would make it very plain, but there is nothing in the treaty to that effect. On the contrary there is a direct statement that the United States reserves absolute jurisdiction and control over that very thing, and therefore can pass such a statute as I have alluded to without apparently infringing the terms of this treaty, rather in accordance with its very terms. Then the citizen would not have in the United States the same rights as he would have if the diversion had

²⁶ *Ibid.*

²⁷ *Ibid.*

²⁸ For example the U.S. - Mexican dispute.

²⁹ The second factor is conditional upon first establishing that *Article II* does import a remedy of some effect.

³⁰ Sir Robert Borden was leader of the opposition at the time.

³¹ Mr. Pugsley was Minister of Public Works at the time.

taken place in Alberta. Therefore I do not think that you can work out the provisions of the treaty in the way the minister suggests."³²

Time has clearly established the opposition leader's argument in most respects. In the first place, since 1909 a majority of river works have been public undertakings and thus sanctioned by law in both Canada and the U.S. In the second place the majority of U.S. State jurisdictions and Canadian Provincial jurisdictions have abandoned or modified the *riparian doctrine* in favour of their own legislative scheme of allocation priorities among water user groups. British Columbia's legislation is such an example. All rights in rivers, per the *B.C. Water Act*³³ are vested in the province. Consequently, a downstream riparian in the Province may have no cause of action if injured by way of a Crown-sanctioned undertaking upstream. If the river was a trans-boundary water, and downstream loss occurred in the U.S., per *Article II* the rights of the U.S. riparian would not exceed those of his Canadian counterparts; namely he would *seem* to have no basis from which to claim a right of compensation in British Columbia.

- (2) LEVEL OF DOWNSTREAM RIPARIAN EXPLOITATION (assuming *Article II* does afford a remedy for the injured riparian at the courts of the injuring riparian such that he is forced to take cognizance of downstream costs) — the extent to which downstream claims will influence upstream decision-making is obviously contingent upon the quantum of those claims. In 1909 the U.S. economy was a more highly developed and refined one than either Mexico's or Canada's. For this reason the U.S. was most likely of the three nations to exploit her water resources for irrigation and, most particularly, large-scale hydro-electric power development to serve her burgeoning industrial requirements. With such domestic requirements in prospect, it would be intolerable to allow a citizen of another state to enjoin upstream works. Thus *Article II* aimed at depriving the downstream interests any right to such a claim of injunction. However with respect to downstream damage claims there was little danger of their being so large as to threaten the economic viability of the U.S. projects, given the comparative backwardness of the neighbouring economies. Thus such claims as a right were not too expensive a concession for the U.S. to make in face of the Canadian representations to preserve the common law's rule internationally.

Article II thus seriously undermined Canada's position with respect to the development of trans-boundary waters flowing into Canada. The common law right to enjoin injurious upstream exploitation was decapitated, and the right to damage compensation placed in jeopardy.³⁴ Even where such damage claims were possible they were confined to then-existing riparian interests and could not take account of future economic values potential to development.

³² *Supra* note 18, at 872-873.

³³ RSBC. 1948 c. 361.

³⁴ Armstrong et al., *The Columbia River Dispute*, Osgoode Hall Law Journal, vol. 1, no. 1, June 1958 at 25.

With these factors in mind, it is perhaps of interest to consider why Canada acquiesced to the U.S. view of the international law. Sir Wilfrid Laurier may have provided some insight on this question when he noted:

"I, for my part, have always believed that the Americans are very good and very fair neighbours, but they always stand for their own view of things and in this matter they did. They said: THIS IS INTERNATIONAL LAW AND WE DO NOT ADMIT TO ANY OTHER INTERPRETATION THAN THIS ONE. IT WAS NO USE TO ARGUE WITH THEM. We might have quoted Vattel and a number of the other writers that we know of, but it would have no effect. Therefore we took this course under the circumstances and said: Very well, if you insist upon your view of it we want one law the same as your law and the consequences will be the same³⁵ on either side."³⁶

It was apparent that Canada was in no position to bargain,³⁷ for as no doubt Laurier appreciated, Canada's exclusive upstream title was then of negligible value, and possibly of no future realizable value.³⁸ But the Canadian position with respect to acceptance of the treaty was unequivocally clear. It either had to digest *Article II* and all that it entailed, or forfeit the goal of establishing a permanent International Joint Commission to deal with future boundary water issues which could replace the somewhat ad hoc antecedent International Waterways Commission. The latter irregularly could solve such issues as were brought before it, and had developed no clear principles of dispute-settling or of bargaining rights, both of which were of some importance³⁹ to Canada.

III

I.J.C. DOCKETS PRE-COLUMBIA RIVER TREATY: ARTICLE II AND PRIOR APPROPRIATIONS

Article II, as a rule of law, gave absolute deference to the national jurisdiction. It was this feature which first attracted the United States to it; a fact

³⁵ By virtue of the greater U.S. development and the fact of U.S. damage claims being more formidable, and the relative underdevelopment of Canada, the consequences were of course by no means anywhere near the same. While both countries could develop upstream to the exclusion of downstream interests as of right, for Canada it was likely to be a prohibitively expensive right where the riparian doctrine applied domestically, while for the U.S., it was not apt to be expensive vis-à-vis Canadian damage claims. At any event her greater development ensured higher relative benefits from exploitation making external claims less serious in an economic sense.

³⁶ *Supra* note 18, at 912. The emphasis is my own.

³⁷ The opposition leader made the point more succinctly in reply to the argument of the Minister of Public Works:

"Mr. Pugsley: . . . (the Hon. leader of the opposition) must recognize it was the settled determination of the United States to maintain the sovereign right to do as they pleased with the waters of their own country except so far as it might interfere with navigation in the neighbouring country.

Mr. Borden: Does the minister mean that because the United States insisted that that was the principle of international law we must admit at once that it was the principle of international law?"

³⁸ See *supra* note 35, The Columbia experience would imply this to be the case.

³⁹ It was in fact so important in the eyes of those who negotiated the treaty for Canada that it more than compensated for the many criticisms attached to *Article II* whose consequences seemed to be very remote. An illustration of this attitude is to be found in the somewhat defensive tenour of G.C. Gibbon's correspondence with the Prime Minister over the course of his three-year long efforts in Washington (re: *supra* note 21).

reflected in the early I.J.C. referrals subsequent to the installation of the I.J.C. Yet the U.S. later discovered that *Article II*, if unconstrained by some modifying doctrine, could occasionally operate detrimentally to their national interests. The *Souris River reference*⁴⁰ of January 15, 1940 was such an example.

(a) *The Souris River reference*

The Souris River is a small, but vitally important, irrigation source to three riparian jurisdictions. Its source waters are in the province of Saskatchewan. From here it flows south to cross the forty-ninth parallel and into the State of South Dakota. It then veers to the north to flow into the Province of Manitoba to ultimately join the Assiniboine River mainstem. Manitoba's water supplies from the river are thus contingent upon upstream uses both in the United States and Saskatchewan. The latter, having in mind the water requirements of its eastern neighbour, and that certain withdrawals were being made in the State of North Dakota, limited its own consumptive uses to ensure the required supplies downstream. However North Dakota began to impound large quantities of this water to service a wild life reserve, thereby creating a shortage for the Province of Manitoba. The resulting objections precipitated a joint reference to the Commission under *Article IX*.⁴¹

Saskatchewan argued that, because, by its own law, human water use requirements have priority, it would only release flows with regard to human uses in both North Dakota and Manitoba. It would not deprive its own citizens of badly needed water of provincial origin for a use not contemplated by the laws of Saskatchewan (ie: wildlife refuges). The United States claimed on the other hand that the withdrawals in North Dakota represented a *prior appropriation* and that per the *doctrine of prior appropriation* it was not bound to make use concessions to the interests of human users downstream and north of the frontier.

While this case was not formally settled⁴² through the I.J.C., its issues are perhaps of vital significance nonetheless. Here was a case where the United States asserted a "first in time first in right" claim as both a downstream and upstream sovereign simultaneously. While the latter claim was wholly consistent with *Article II* (which imports priority to upstream uses regardless of which riparian state is first in time to develop) the former position conflicted with *Article II*. If the *doctrine of prior appropriation* sanctifies a prior use downstream as against future upstream development, the upstream power obviously has something less than full jurisdiction and control. The United States thus seemed prepared to claim against the Province of Saskatchewan a right which she concurrently was prepared to deny Manitoba, and as she had in fact denied the Mexicans thirty-five years previously.⁴³

⁴⁰ Docket 41.

⁴¹ *Supra* note 4.

⁴² In April 1958 the two sections of the I.J.C. sent separate reports to the two governments recommending an interim apportionment of Souris flows between the two provinces and North Dakota.

⁴³ The Rio Grande dispute.

While unfortunately argument on the Souris River apportionment was curtailed by changing circumstances,⁴⁴ the *Sage Creek reference* of 1946⁴⁵ gave a perhaps clearer picture of the changing American mood vis-à-vis downstream riparian rights and concomitant liabilities upon upstream riparians.

(b) *Sage Creek reference*

Sage Creek is an almost insignificantly small watershed that rises in the province of Alberta and flows into the state of Montana. The I.J.C. reference was instigated by a single Montana rancher who alleged that upstream uses in Alberta pre-empted the use of Sage flows for ranching purposes downstream. Basically he attempted to assert the right of a common law riparian owner.

Hearings were held over a year later.⁴⁶ Counsel for the U.S. claimed the entire flow of the Creek under the *doctrine of prior appropriation*. In reply to the contention by Canada that this was contrary to *Article II*, U.S. counsel alleged that, first, the United States had at no time followed the *Harmon Doctrine*,⁴⁷ and second, that *Article II's* solitary purpose was to give Canada a cause of action in the event of U.S. upstream development causing injury to her.⁴⁸ Once again the I.J.C. failed to answer these arguments knowing that to do so necessitated an interpretation of *Article II*, and instead submitted an interim report to the respective governments,⁴⁹ and appointed the International Sage Creek Engineering Board⁵⁰ which in turn recommended the establishing of an International Sage Creek Board of Land Use.⁵¹ The Sage Creek issue is as of yet unsettled.

Despite the U.S. arguments in the *Souris and Sage Creek references*, the later *Waterton-Belly Rivers reference*⁵² evidenced a complete reversal of position by the American negotiators. For this reason, and for the detailed attention paid to U.S. upstream interests, this reference⁵³ is perhaps one of the most important to come before the I.J.C.⁵⁴

⁴⁴ The U.S. planned to import up to 2.6 million acre-feet of Missouri R. water stored behind the Garrison Dam for irrigation and Saskatchewan planned a reservoir on Long Creek, a tributary of the Souris.

⁴⁵ Docket no. 54.

⁴⁶ The hearings were held at Havre, Montana, Nov. 10, 11, and 12, 1947.

⁴⁷ Clearly the U.S. followed the *Harmon Doctrine* when they first asserted it against Mexico, as well as when they included it within the *Boundary Waters Treaty*.

⁴⁸ Such an argument was both obtuse and contradictory. If the common law riparian doctrine had not been supplanted by *Article II* Canada would have had a cause of action. *Article II's* role was clearly not to confer a cause of action but to limit the same so far as Canada was concerned. In particular it was to limit prior appropriation interests to damage issues and make such prior appropriations defeasible to the upstream interests. Thus *Article II* or the *Harmon Doctrine* opposes both the *doctrine of prior appropriation* and the *riparian doctrine*.

⁴⁹ October 4, 1951.

⁵⁰ January 26, 1949; the Board made a final report on August 10, 1950.

⁵¹ This Board reported on March 2, 1953.

⁵² The reference was submitted January 12, 1948.

⁵³ Docket no. 57.

⁵⁴ This was both the case when the referral was made, and may well be the case today vis-à-vis re-establishing a rule of law with respect to Canadian-American trans-boundary water.

(c) *Waterton-Belly Rivers reference*

The Waterton and Belly Rivers rise in Montana and flow north across the frontier with Alberta enjoying the downstream position. The province proposed to construct works so as to devote the entire flows of each to domestic irrigation needs. The United States requested an I.J.C. reference BECAUSE THE FLOWS ORIGINATED FROM WITHIN THE STATE OF MONTANA. Montana for its own part had never used the flows of either river, and as it later appeared, had no future uses in prospect. When the U.S. realized this, a survey was made of potential ways of making use of the flows on the American side of the boundary. A single plan was forthcoming known as the "All-American Tunnel and Canal". Unfortunately, from both an engineering and economic standpoint, the scheme proved impossible. Consequently the U.S. offered the following alternative proposal: namely that Canada could have title to the flows to both rivers if she would return one-half of this total flow from her share of the nearby St. Mary's River⁵⁵ to a point on the boundary of Montana (with transportation costs assumed in perpetuity by Canada).

Canada rejected the proposal making the argument below (summarized by Bloomfield and Fitzgerald).⁵⁶

"Counsel for Canada stated that no use had ever been made in the past by the United States of the waters of the Waterton and Belly Rivers, but that the only use had been on the Canadian side of the boundary. Past use conserved the right for future use both under international law and the precedents of the commission. Therefore, the question was one of the apportionment of the remaining flow of the water in the future, in the public interest of both countries."⁵⁷

The Canadian response was essentially to argue the *doctrine of prior appropriation* in face of the clear re-assertion by the United States of *Article II*. It was an unfortunate argument for Canada passed on the opportunity to clarify the ambiguities created by the *Souris and Sage Creek references* with respect to upstream riparian rights and obligations. It also meant losing the opportunity of greatly expanding the effect of *Article II* so as to give a paramount consumptive title to flows to the upstream power; a position which would prove to be of great potential value to Canada when the Columbia River complex came in issue before the I.J.C. Instead Canada, by rejecting the U.S. arguments (re: known as the *Montana Doctrine*), strengthened the *doctrine of prior appropriation* which had the necessary concomitant result of weakening her own upstream position respecting those trans-boundary waters which were of Canadian origin.

(d) *The Columbia River reference*

The Columbia River was first referred⁵⁸ to the Commission on March 9, 1944 with a request by the two governments to investigate and recommend further development.⁵⁹ The specific terms of reference were in part as below:

"It is desired that the Commission shall determine whether in its judgment further development of the water resources of the river basin would be practicable

⁵⁵ The apportionment of the St. Mary and Milk Rivers were specially provided for by *Article VI* of the *Boundary Waters Treaty*.

⁵⁶ Bloomfield and Fitzgerald, *Boundary Waters Problems: Canada and the U.S.*, Carswell, Toronto, 1958, *supra* note 5.

⁵⁷ *Ibid.* at 178.

⁵⁸ Docket no. 51.

⁵⁹ Much of the lower Columbia was developed under Roosevelt's post-depression reconstruction programme.

and in the public interest from the points of view of the two governments, having in mind (a) domestic water supply and sanitation, (b) navigation, (c) efficient development of waterpower, (d) the control of floods, (e) the needs of irrigation, (f) reclamation of wet lands, (g) conservation of fish and wildlife, and (h) other beneficial public purposes.

In the event that the Commission should find that further works or projects would be feasible and desirable for one or more of the purposes indicated above, it should indicate how the interests on either side of the boundary would be benefited or adversely affected thereby, and should estimate the costs of such works or projects, including indemnification for damage to public and private property and the costs of any remedial works that may be found to be necessary, and should indicate how the costs of any project and the amounts of any resulting damage may be apportioned between the two Governments."⁶⁰

From its source in Columbia Lake on the western slope of the Rocky Mountains, the mainstem Columbia flows for a total of 1,220 miles reaching the Pacific Ocean near Astoria, Oregon. The initial 480 miles are wholly within the province of British Columbia. The river, in terms of annual discharge, is the third largest in North America⁶¹ yielding to the Pacific an average of 180 million acre feet (hereafter referred to as MAF). However in terms of power production potential⁶² the Columbia's drop of 2652 feet from source to sea makes it the continent's greatest energy source, representing at minimum 15% of that hydroelectric potential available to the globe.^{63,64} Of this amount 50% could be developed within British Columbia,⁶⁵ despite only fifteen percent of the basin as a whole lying in Canadian territory.⁶⁶

Both the Columbia and Kootenay rivers are fed from the run-off of mountain snow packs. Thus over the course of a full year flow rates vary considerably. In the case of the Columbia 120 MAF of the 180 MAF total discharge occurs over the course of four months (ie: May, June, July, and August). At the time of the Columbia River reference existing developments utilized approximately one-third of the total discharge for hydroelectric generation on the U.S. reaches of the river. The remaining two-thirds of the river's flow was forfeited each year due to a lack of adequate upstream storage. There was however an attractive⁶⁷ opportunity to create additional impounding facilities within the Canadian section which was, at the time, wholly unexploited. In addition neither the Canadian nor American sections of the Kootenay (Kootenai)⁶⁸ were significantly developed.

⁶⁰ *Supra* note 5, at 164-165.

⁶¹ James G. Ripley, *The Columbia River Treaty*, Engineering and Contract Record, February, 1962.

⁶² Press release, April 1964, B.C. Government, *Columbia River Development: Proposed Hydroelectric Projects in Accordance with Requirements of the International Treaty*.

⁶³ C.B. Bourne, *Development of the Columbia River; Its International Legal Aspects*, Canadian Bar Association Meeting, 1957 at 90.

⁶⁴ Including both developed and undeveloped.

⁶⁵ The Canadian Section drops 1360 of the total 2650 feet of river head.

⁶⁶ However the average Columbia discharge from the Canadian sources is 62.4 MAF per annum, or greater than 30% of the river's total annual flow.

⁶⁷ They were 'attractive' in the sense that the Canadian reaches of the Columbia were characterized by: (1) deep gorges, and (2) relative undevelopment making cost barriers low and maximizing storage facilities physically feasible.

⁶⁸ Kootenai is the U.S. spelling applying to their section of the river.

Power reserves of the U.S. Pacific Northwest were quickly becoming over-taxed⁶⁹ and the need of increased development was apparent. However, valley conditions and the locations of existing developments made increased storage on the U.S. section of the Columbia economically impractical. It was therefore of importance to the U.S. that Canada begin exploiting its section of the river. The Kootenay on the other hand could be harnessed in either Canada or the United States, although backflooding costs would be lower in Canada.⁷⁰

The point of dispute that grew between Canada and the U.S. focused upon the issue of control. Development was of obvious economic advantage to both countries, but the type of developments that Canada undertook as the upstream state would determine the distribution of benefit-sharing between the two entities. For example, if Canada were to maximize the hydroelectric potential of its section of the Columbia, or the Columbia-Kootenay combined, the value of the increased head control would be less to American power producers than if Canada were to only construct single-utility storage dams. The latter arrangement would make it possible to time upstream flow releases so as to maximize the efficiency of downstream power production. The former arrangement would create some⁷¹ conflict between peaking power releases upstream and peaking power demands downstream.

While there were numerous development sequences proposed for the upper Columbia and Kootenay, only two are of concern to this paper. These were known as ICREB⁷² sequences IXa and VII. Sequence IXa was the plan first favoured by Canada. Sequence VII was in turn supported by the United States, and provided the basis for the *Columbia River Treaty of 1961*.

Sequence IXa contemplated a Canadian diversion of the southern-flowing Kootenay near Fort Steele⁷³ and a re-routing of its headwaters across a half-mile strip of land⁷⁴ known as Canal Flats, and into the northerly flowing branch of the Columbia. The integration was to be accomplished by way of three storage structures; the Dorr and Bull River sites on the Kootenay, and the Luxor structure on the upper Columbia. This storage was in turn to ensure the maximum amount of prime energy available to the major hydroelectric component of Mica Creek, situated on the mainstem Columbia just after the point where the river veers to the south.⁷⁵ Sequence IXa was significant in the following respects:

- (1) it maximized the generating potential in Canada via full development of the most promising hydroelectric site of the upper Columbia, Mica Creek.
- (2) sequence IXa maximized the volume of storage attributable to Canadian structures which meant that Canada could make the largest possible claim from the U.S. downstream benefits thus afforded (ie: once the concept of downstream benefit-sharing was established).

⁶⁹ McNaughton, *Problems of Development of International Rivers on the Pacific Watershed of Canada and the U.S.*, 5th World Power Conference, Vienna, 1956.

⁷⁰ Owing to the relative lack of development in the Canadian Kootenay Valley.

⁷¹ Even if Canada were to develop hydroelectric power from all the new storage there would still be an absolute advantage to U.S. power producers in as much as more power could be produced downstream.

⁷² The International Columbia River Engineering Board.

⁷³ Known as Canal Flats.

⁷⁴ Ft. Steele consists of eight streets, one of which is a highway, and 22 odd buildings. This would seem to suggest that the cost of inundating it with flood waters is not apt to be too significant, even if it means relocating each building for its "historic value".

⁷⁵ Just south of the Canoe River confluence with the Columbia.

- (3) sequence IXa allowed the retention of full Canadian sovereignty over the use and control of the maximum amount of storage and thus made possible future extra-basin diversions for consumptive uses.
- (4) sequence IXa facilitated a maximum increment to absolute U.S. hydroelectric capacity on the lower Columbia requiring a minimum of capital expansion via allowing exploitation of Kootenay flows without having to dam the U.S. section of that river.

In the case of Sequence VII there was to be no diversion of the Kootenay into the Columbia. Instead the river would be exploited by way of a \$300,000,000 structure known as Libby⁷⁶ in the state of Montana. Libby's flood zone was to include 15,000 acres (over forty-two miles)⁷⁷ within the Canadian section of the Kootenay Valley. The Libby project would ensure full U.S. physical control⁷⁸ over the regulation of the Kootenai flows. Sequence VII did not include a Kootenay-Columbia headwater integration, or any significant storage upstream from the Mica power site. Instead the bulk of the Canadian storage was to be placed downstream near Castlegar, British Columbia via the High Arrow damsite. High Arrow would ensure Canadian power production would not conflict with U.S. power needs downstream for it limited the storage available to Mica to that volume impounded by the dam itself, and located the balance of the Canadian storage at an altitude which made hydroelectric generation impractical. Thus Sequence VII was significant in the following respects:

- (1) Sequence VII demasculated Mica Creek ensuring either insignificant Canadian power development on the upper Columbia, or none at all.⁷⁹
- (2) Sequence VII gave the U.S. control over regulation of upper Columbia storages.
- (3) Sequence VII gave the U.S. physical control over Kootenai flows with the approval of the Libby project.
- (4) Sequence VII excluded the extra-basin diversion proposals by Canada to the prairie regions for irrigation consumption purposes.
- (5) Sequence VII was consistent with the *doctrine of prior appropriation* and inconsistent with *Article II* of the *Boundary Waters Treaty*.

Sequence VII and sequence IXa thus represent two wholly conflicting positions with respect to which nation held control of the upstream storage. It was quite natural therefore for Canada to adopt the latter sequence as its plan of development. But in addition the Canadian negotiators⁸⁰ took the position that, as Canadian resources were being utilized to realize upstream storage, the U.S. should return one-half of those downstream benefits arising as a consequence of Canadian effort. The initial American response was to dismiss the Canadian representation on the apparent assumption that domestic Canadian power requirements made upstream exploitation of the Columbia development inevitable. However two factors caused the U.S. view of the matter to change. The first was a growing interest by British Columbia in the Peace River hydroelectric

⁷⁶ See Libby Dam Reference discussed *infra*.

⁷⁷ The depth of the floodwaters at the border is to be 150 feet.

⁷⁸ If the doctrine of prior appropriation applies, physical control is equivalent to legal control. See discussion *infra*.

⁷⁹ With call to less storage, the potential generating efficiency of the Mica plant dropped severely. There was some doubt, as a consequence, about machining it at all for its output is apt to be too expensive to warrant the effort involved.

⁸⁰ Under the chairmanship of General the Honourable A.G.L. McNaughton.

development.⁸¹ The second factor concerned Canadian discussions and investigations regarding extra-basin diversions of Columbia waters.⁸²

The U.S. therefore acquiesced upon the Canadian claim to a share in the downstream benefits in order to ensure that there would not be further postponement of upstream development. However there still remained the question of future Canadian diversions under the cover of *Article II* so long as Canada retained control over the river storages. Thus, over and above the concession of an equal share of the downstream benefits, it was necessary for the U.S. to undertake further steps to secure unrestricted control over the use of the basin water resources in Canada. Towards this end the following arguments⁸³ were developed by the U.S.:

- (1) *Article II* refers to normal uses only—the U.S. contention here was that an extra-basin diversion is an ‘unreasonable use’ of upstream waters, and is therefore beyond the scope of *Article II*. Instead the principle of “equitable apportionment” should obtain so as to ensure equitable sharing of the water resources of a trans-boundary river basin.

The above argument however ignored the position that the U.S. had earlier reached with reference to the Waterton and Belly Rivers.⁸⁴ Here it was submitted that the U.S. as upstream owner had the authority to divert the entire flow of both rivers into another basin. There was no suggestion that such a use was unreasonable, and that a doctrine of equitable apportionment should obtain.

- (2) The *doctrine of prior appropriation*—the U.S. argued that existing U.S. developments on the Columbia and the contemplated expansion of Columbia facilities on the U.S. section, as well as the Libby dam proposal on the Kootenai, gave the U.S. a prior right to the entire flows of both rivers, unconstrained by any rights Canada may have once had under *Article II*. In other words the *doctrine of prior appropriation* was put forward as the guiding international rule of law, with *Article II* only conferring the right to divert in the absence of present or contemplated downstream interests liable to injury thereby.

Except for the inclusion of future interests this argument was essentially the same as that which the Americans presented in the *Sage Creek reference*.⁸⁵ As noted in the earlier discussion of this case, the *doctrine of prior appropriation* envisages something less than exclusive jurisdiction and control for the upstream riparian and is therefore inconsistent with *Article II* which makes no reference to appropriated or unappropriated waters. And yet in this regard the U.S. earlier had rejected Canada's reference to a “first in time first in right” claim with reference to the Waterton and Belly Rivers.

⁸¹ This project was being promoted by the Swedish Industrialist Axel Wenner Gren and was a *prima facie* substitute power source.

⁸² There were two such diversions at issue. The first was the subject of a B.C. Engineering Co. study which involved the re-routing of 10 MAF to 15 MAF of Columbia head into the South Thompson River, and thence the mainstem Fraser where it would supplement the storage capacity of structures proposed on that river. It would add in the order of ½ million Kw's to the power production of the scheme.

The second proposal concerned the diversion of 6,000 cubic feet per second out of the Dorr, Bull R., Luxor reservoir into the North Saskatchewan for the purpose of augmenting prairie water supplies, and incidentally generating hydroelectric power on the Eastern slope of the Rockies (ie: to help defray project operation costs).

⁸³ Docket 51.

⁸⁴ Docket 57.

⁸⁵ Docket 54.

The Canadian response to this second U.S. position was mixed. While there was a refusal to accord projects under contemplation a right of prior appropriation, there was general acceptance of the principle that upstream Canadian development should not impinge on the efficiency of existing U.S. developments downstream. However it is not entirely clear whether this was intended as an acceptance of the doctrine itself in a general sense, or a concession in the interests of good international relations with no relevance beyond the particular case of the Columbia. The chairman of the Canadian section of the I.J.C. at the time⁸⁶ adopted the view that a downstream interest injured by reason of development in Canada would have an enforceable damage claim in the Exchequer Court (despite the *B.C. Waters Act*) per the remedy provision of *Article II*. On the other hand the chairman was also quoted as saying:

"Whoever first appropriates water to a beneficial use has a prior right thereto so long as he continues to exercise it. The appropriation must be of a specific amount of water for a specific beneficial purpose and must be perfected in due course by actually constructing the necessary works and putting the water to use."⁸⁷

Thus the Canadian view of the doctrine was somewhat ambiguous vis à vis the question as to whether the prior right arising downstream imported a limitation upon upstream prerogatives per *Article II* or was confined merely to the question of damages.

The development subsequently realized under the *Columbia River Treaty* served to cast even greater doubt upon the question of whether the *doctrine of prior appropriation* or *Article II* was the guiding rule of law. With the adoption of sequence VII Canada made neither intra nor extra-basin diversions, and the Libby Kootenai project was approved. Both of these features were consistent with not only the *doctrine of prior appropriation*, as it related to existing downstream development, but also with the U.S. view that the doctrine applied to uses de futuro as well. While, as noted, there was evidence of Canadian disapproval of this latter interpretation, the plan of development agreed to in 1961 did nothing to reflect such disapproval. Thus the treaty agreement deleted the Canadian upstream use prerogatives and increased upstream obligations vis à vis the protection of downstream interests to an extent that is as of yet unclear.

Such a resulting confusion was unnecessary. The U.S. arguments and reservations in the *Waneta Dam reference* (which occurred simultaneously with the Columbia-Kootenay river negotiations) eloquently demonstrated this point.

(e) *Waneta Dam and Reservoir reference*

The Pend Oreille River⁸⁸ rises in the state of Idaho and flows to the north and west through the neighbouring state of Washington and British Columbia. A short distance after the river crosses the frontier it flows sharply to the west to join the Columbia near the very point where the former crosses into the U.S. An application was filed with the I.J.C. on May 22, 1951 on behalf of the Consolidated Mining and Smelting Company of Canada seeking approval of the

⁸⁶ General the Hon. A.G.L. McNaughton.

⁸⁷ McNaughton, A.G.L. *Statement before the Standing Committee on External Affairs*, House of Commons, May 12, 1954, at 86.

⁸⁸ The U.S. spelling applying to their section of the river.

erection, and operation of the Waneta Dam on the Pend d'Oreille.⁸⁹ As a direct consequence of this work, three acres of the Cedar Creek Valley would come under flood in the State of Washington.

The U.S. gave its approval so as to allow the project, subject to a right of full compensation being provided all those suffering any injury, and subject to the reservation that:

"... issuance (of the order of approval) should not be construed as waiving or otherwise impairing in any degree the right of the United States recognized in Article II of the Treaty, to construct, maintain, and operate such works as it may consider necessary or desirable for the purpose of making the most advantageous use reasonably practicable on its own side of the international boundary by diversion for power purposes or otherwise of the waters of the Pend d'Oreille River as regulated by headwater storage reservoirs lying entirely within the United States and constructed wholly at the expense of the United States, or the expense of United States interests."⁹⁰

Thus the United States, while taking a course of action contrary to the *Harmon Doctrine* in fact, and consistent with the *doctrine of prior appropriation*, made the order of approval subject to a reservation that conveyed no doubt that they did not thereby abrogate, or intend to abrogate, any of the *Article II* rights. This Canada failed to emulate when approval was granted to the Libby Kootenai project.

IV

THE COLUMBIA RIVER TREATY

The *Columbia River Treaty* has been variously referred to as everything from a great international achievement to an unparalleled squandering of Canadian resources and sovereignty. The last view in both the legal and economic senses would appear to have the most merit. This is the case for two reasons. In the first case the Treaty caused Canada to abrogate the right to make use of one of the world's most important and attractive power sources. Second, the Treaty gave no recognition to the enormous consumptive value of the Columbia basin water resources.⁹¹ Further it can be argued that both such losses may be perpetual and thus perhaps implies a new precedent basis to future Canada-U.S. trans-boundary water negotiations.

In this regard *Article IV, Section Five* is of note. It reads as follows:

- (5) ANY WATER RESOURCE DEVELOPMENT, in addition to the Canadian storage, constructed in Canada after the ratification date shall not be operated in a way that adversely affects the stream flow in the Columbia River within Canada so as to reduce the flood control and hydroelectric power benefits which the operation of the Canada storage IN ACCORDANCE WITH THE OPERATING PLANS IN FORCE FROM TIME TO TIME would otherwise produce."⁹²

⁸⁹ The Canadian spelling.

⁹⁰ *Supra* note at 47.

⁹¹ Which can be given a minimal value of \$4,500,000,000 per annum given the minimum value of water on the mainstem to have an imputed value of \$39 per acre foot.

⁹² Article IV (Operation by Canada). The emphasis is my own.

Section five of itself would appear to unequivocally prevent Canada from altering flows such that regulation conflicted with current or future uses of U.S. downstream power or flood control interests. This provision, *prima facie*, binds Canada in a manner consistent with the *doctrine of prior appropriation* as applied with reference to both present and future utilization. This derives from the fact that, first, the U.S. section is in the process of increasing hydroelectric capacity by way of expansion of existing facilities so as to make full use of the new Canadian storages, and secondly, owing to this increased utilization, operating plans will over time appropriate the entire river storages.

Proponents⁹³ of the Treaty have, on the other hand argued that *Article IV, Section five* is limited in effect by *Article XIII, Section one*, which purportedly permits Canada to appropriate flows for consumptive uses by way of diversion.

- (1) "Except as provided in this Article neither Canada nor the United States of America shall, without the consent of the other evidenced by an exchange of notes, divert for any use, OTHER THAN A CONSUMPTIVE USE, ANY WATER FROM ITS NATURAL CHANNEL in a way that alters the flow of any water as it crosses the Canada-United States of America boundary within the Columbia River basin."⁹⁴

With reference to this argument a number of points are clear. In the first place, the opening clause of *Section five, Article IV* refers to "any water resource development", which in turn implies that the two sections are contradictory. In the second place *Article XIII* is subject to termination. *Article XIX* which deals with the *Period of Treaty* is the relevant provision here: in particular its *Section four*:

- (4) "If the Treaty is terminated before the end of the useful life⁹⁵ of the facilities providing the storage described in Article IV (3) and if the conditions described therein exist there, notwithstanding termination, Article IV (3), and VI (4) and (5) REMAIN IN FORCE UNTIL EITHER THE END OF THE USEFUL LIFE OF THOSE FACILITIES OR UNTIL THOSE CONDITIONS CEASE TO EXIST, WHICHEVER IS THE FIRST TO OCCUR."⁹⁶

In addition *Section one of Article XIX* provides for the termination of the treaty, subject to certain specific exceptions⁹⁷ after the expiry date of sixty years. Thus *Article XIX Section four* would preserve the effect of *Section three Article IV* in the event of termination which would eliminate *Section one of Article XIII*⁹⁸ and with it Canada's purported right to make consumptive diversions.

- (3) "For the purpose of flood control after the expiration of sixty years from the ratification date, and for so long as the flows in the Columbia River in Canada continue to contribute to potential flood hazard in the United States of America, Canada shall, when called upon by an entity designated by the United States of America for that purpose, operate within the limits of existing facilities any

⁹³ See *Commons External Affairs Committee Hearings*.

⁹⁴ *Article XIII* (Period of Treaty). The emphasis is my own.

⁹⁵ The Treaty's Article I, section (1) subsection (o) defined "useful life" as "the time between the date of commencement of operation of a dam or facility and the date of its permanent retirement from service by reason of obsolescence of wear and tear which occurs notwithstanding good maintenance practices." In other words, "useful life" could create a perpetual obligation by amounting to a perpetual appropriation given that proper maintenance may preserve a structure indefinitely into time.

⁹⁶ *Article XIX* (Period of Treaty), *Section (4)*. The emphasis is my own.

⁹⁷ In particular Sections (2), (3), (4), and (5) of *Article XIII, Article XVII*, and *Article XIX*.

⁹⁸ *Article XIX Section one* is specific on this point.

storage in the Columbia River basin in Canada as the entity requires to meet flood control needs for the duration of the flood period for which the call is made."⁹⁹

While, as an ethical question there can be little argument that Canada should continue to provide flood control as the U.S. requires it beyond the life of the main agreement, a sharp distinction can be drawn between the gratuitous provision of the service and a formal treaty obligation to provide it. This is due to the fact that flood control and hydroelectric benefits resulting from upstream storage are not mutually exclusive. To the extent that the downstream nation can, as of right, request upstream storage control for flood protection, it can also ensure a greater total storage on the system which will be later translated into a hydroelectric benefit (ie: when such storage is released as flood conditions subside).

Thus it can be seen that the *Columbia River Treaty* failed to preserve the applicability of *Article II* of the *Boundary Waters Treaty* with respect to Canada's future use of the Columbia basin's water resources. In fact the Columbia agreement may have been successful in eliminating *Article II's* status as a rule of international law with respect to all Canada-U.S. transboundary waters. In this regard *Article XVII* of the *Columbia River Treaty* is of some importance, for it purports to guarantee a return to pre-existing rules of international law upon the Treaty's termination. This however is no guarantee of the *Harmon Doctrine*, for the U.S. can quite properly argue that they no longer recognized this principle prior to 1961 (re: the *Sage River reference* arguments by U.S. counsel). In addition, as noted above, the appropriation rights under the Treaty continue beyond the life of the main agreement by virtue of its *Article XIX*. Also *Article XVII* provides for the cancellation of the effect of *Article II* which implies that its rights are created (ie: being subject to cancellation) rather than a hard and fast rule.¹⁰⁰ It would therefore appear that the Treaty has been largely successful in making the status of *Article II* ambiguous beyond recognition if not destroying it entirely.

Despite the overwhelming evidence that the *Columbia Treaty* has wrought permanent changes in Canada-U.S. trans-boundary water law, it has nonetheless been asserted¹⁰¹ that the protocol to the Treaty definitively prevents the Treaty from having precedent value by virtue of its twelfth provision:

- (12) "Canada and the United States of America are in agreement that the treaty does not establish any general principle or precedent applicable to waters other than those of the Columbia River Basin and does not detract from the application of the Boundary Waters Treaty, 1909, to other waters."¹⁰²

⁹⁹ Article IV Operation by Canada.

¹⁰⁰ *The Law Respecting International Rivers as Developed by Canada and the United States: A Survey and Recent Developments*, John Lorn McDougall, (unpublished).

¹⁰¹ For example, "It has been suggested that the treaty would establish a precedent for the development of international rivers which would restrict Canada's freedom to develop rivers such as the Yukon in a manner most advantageous to this country in the particular circumstances of each case. The Protocol states clearly that the Treaty does not establish any such principle or precedent and effects no change in the application of the Boundary Waters Treaty to other international rivers." *The Columbia River Treaty and Related Documents*, Department of External Affairs et al., February 1964, Queen's Printers, at 132.

¹⁰² *Ibid.*, at 114.

A number of factors are of note on this point. First, while Canada ratified the protocol, the United States did not. Thus it does not have the force of law within the U.S. An extreme view might be that it neither binds the U.S. internationally. Second, the provision is vaguely worded and third, it is ambiguous for express terms of the treaty do affect the application of the *Boundary Waters Treaty* as noted above.

To summarize the *Columbia River Treaty* has, *ceteris paribus*, given the United States more or less complete control over the assets of the basin for the following reasons:

- (1) over the life of the treaty Canadian storages will be operated so as to maximize hydroelectric benefits on the American side of the international boundary;
- (2) most importantly, as a consequence of the U.S. control over the operation of Canadian storages, and her rights under *Article XIII, Section one*, the United States is in a position to apply the entire storage potential of the Canadian treaty projects to consumptive uses on their own side of the line. This will in short permit them to perfect a complete appropriation of water otherwise within the sovereign jurisdiction of Canada.

With respect to these two points it is important to note that as between consumptive and hydroelectric benefits, the preponderate long term gains for the U.S. as a consequence of the Treaty are within the former category.¹⁰³ The value of this insured access to a new and vast source of consumptive storage did not and will not go unnoticed in face of the enlarging regions of water deficiency in the western United States. As one author suggested in this context:

["The United States is interested in water] because right now huge territories are scraping the bottom of their water barrel. And within the next generation the development of a major part of U.S. territory is likely to be choked off by drought . . . [this] prompts us to check the list for the water-surplus areas. . . .

Only the Pacific Northwest, Eastern Great Lakes and Central Pacific regions remain as surplus areas on which the others could ever theoretically draw—not in 1980, but right now . . . it's quite obvious that the Central Pacific area's surplus is not big enough to provide anything but temporary relief for neighbours as water-hungry as the South Pacific. That leaves the Pacific Northwest and the Eastern Great Lakes regions to carry most of the load. And Montreal and other cities relying on the eastern great lakes are now in difficulties. Obviously, they are more in a position to need help than to give it.

All that remains is the Pacific Northwest. This region gets the big bulk of its water from the Columbia River—28 per cent . . . coming from Canada. "THE UNITED STATES HAD THAT WATER IN MIND WHEN IT SIGNED THE COLUMBIA TREATY WHICH CONSIDERING POWER ALONE WAS . . . A 'SECOND BEST.'"¹⁰⁴

In terms of its legal effects the *Columbia River Treaty* represented the culmination of three underlying trends of the international law with respect to this area. These were in summary:

- (1) a depreciation of the *Harmon doctrine* and/or *Article II* of the *Boundary Waters Treaty*;

¹⁰³ Indeed many noted American experts have sharply criticized the Treaty from the point-of-view of the power benefits alone. While these gains were certainly not unimpressive, they were nevertheless less than optimal in terms of the alternative power development sequences available. cf. J.V. Krutilla, *The Columbia River Treaty: The Economics of an International River Basin Development*, John Hopkins Press, Baltimore, 1967.

¹⁰⁴ J.S. Cram, *Water: Canadian Needs and Resources*, Harvest House, Montreal, 1968, at 137-138. The emphasis is my own.

- (2) a growth in stature of the competing doctrine of prior appropriation (ie: and with it a new emphasis being placed upon the rights of downstream riparian owners); and
- (3) a general tendency away from the hard-and-fast rules of treaty-based international law towards a more flexible and individualistic case-by-case method of problem-solving. This approach has been called the "doctrine of equitable apportionment".

Each of these three trends represents a worsening of the Canadian position. The Columbia River development presented an unequalled opportunity for Canada to put to good use a principle of law which, if we are to believe Sir Wilfrid Laurier, was thrust upon the country very much against his will. But in 1961 Canada instead acquiesced to the U.S. claims that the law was "ripe for change" without appearing to have critically examined the costs to the national sovereignty that might accrue as a consequence. Any Canadian losses with respect to the Columbia were the direct result of this failure.

It is suggested however in face of the present ambiguity there exists ample room for a re-assertion of the basic precepts of the *Boundary Waters Treaty* (re: the specifics of this contention are to be examined in section VIII below), and that such a reversal in trend will further have two distinct advantages for Canada so far as the particular case of the Columbia is concerned. These are:

- (1) it will make it possible to assert sovereign control over Canadian storages vis-à-vis the right to make consumptive withdrawals notwithstanding the fact that similar withdrawals may have been made downstream; and
- (2) upon expiration of the treaty, it will be possible for Canada to make pre-emptory intra and extra basin diversions for hydroelectric and combined hydroelectric-consumptive uses notwithstanding power and other developments realized in the United States and otherwise protected by the doctrine of prior appropriation.

Insofar as the more general body of trans-boundary riparian relations between the two countries are at issue it will allow Canada to definitively reject the uncertain doctrine of equitable apportionment and the notion that it and the *Columbia River Treaty* represents a recognition by Canada of the principle of a "continental water resource heritage". The implications of "equitable apportionment" in the context of both the Columbia and a Canadian-American water export agreement will be considered in the section to follow.

V

THE COLUMBIA AND THE DOCTRINE OF "EQUITABLE APPORTIONMENT"

The trend away from the strictly-defined rights of the *Boundary Waters Treaty* as evidenced in the negotiations leading to the Columbia River Settlement has been said to have earmarked the birth of a new precept of the international law in effect between Canada and the United States. Professor R. Johnson of

the University of Washington Law School for example has argued that as a result of the *Columbia River Treaty*;

"Equitable apportionment [has] emerged as the widely favoured principle. This concept embodying the notion of fairsharing, was extolled almost without exception by lawyers, scholars, and statesmen on both sides of the border."¹⁰⁵

That the question of apportionment is outside of the Canadian-American treaty law has been clearly recognized by the two countries. For example the 1967 Report of the International Joint Commission on the *Co-operative Development of the Pembina River Basin* complained in this connection that:

"The Boundary Waters Treaty of 1909 provides no guidance in the matter of apportionment of waters in rivers which cross the international boundary. Article II states the principle that each country, along with its respective Provincial and State Governments, normally retains 'exclusive jurisdiction and control over the use and diversions' of all the upstream waters on its own side of the boundary. . . . The basis for the apportionment required to bring about this co-operative development [of the Pembina] MUST BE DERIVED FROM SOURCES OUTSIDE THE TREATY."¹⁰⁶

It has been suggested that the doctrine is in effect an integral part to what is called the "drainage basin approach" to international river basin development,¹⁰⁷ and is aptly described by Article V of the *Helsinki Rules on the Uses of the Waters of International Rivers*¹⁰⁸ which is concerned with the determination of reasonable and equitable sharing of beneficial uses of an international drainage basin. Article V directs attention to the following factors in this regard:

- (e) the economic and social needs of each basin state;
- (f) the population dependent on the waters of the basin in each basin state;
- (g) the comparative costs of alternative means of satisfying the economic and social needs of each basin state;
- (h) the availability of other resources;
- (k) the degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state. . . .¹⁰⁹

By this statement of the principle it is rather difficult to distinguish equitable apportionment from the doctrine of prior appropriation with reference to projects under contemplation (re: the interpretation asserted by the U.S. concerning its purported right to appropriate Kootenai flows for its planned Libby project discussed, *supra*). In both cases insofar as the Columbia was concerned their underlying object was to obtain Canadian recognition that the greater demands for water and power in the southern portion of the basin gave rise to a greater claim in equity to the assets of the basin as a whole, and that this fact should rule rather than the strict sovereignty theory implicit to the *Harmon doctrine* or *Article II*. Indeed it was contended by the United States that under the doctrine of equitable apportionment U.S. future needs placed a limitation upon Canada's right to make use of waters of domestic origin by way of diversion.

¹⁰⁵ R.W. Johnson, *The Columbia Basin, The Law of International Drainage Basins*, Garretson et al, New York University School of Law, Oceana Publications, Dobbs Ferry, New York, 1967, at 235.

¹⁰⁶ Report of the International Joint Commission on the *Co-operative Development of the Pembina River Basin*, October 1967, at 30-31. The emphasis has been added.

¹⁰⁷ C.B. Bourne, *The Development of International Water Resources: The "Drainage Basin Approach"*, The Canadian Bar Review, March 1969, Vol. XLVII no. 1.

¹⁰⁸ *Helsinki Rules on the Uses of the Waters of International Rivers*, adopted by the International Law Association at the 52nd Conference held in Helsinki, August 20, 1966. The International Law Association, 1967.

¹⁰⁹ *Supra* note 119, at 69.

"A possible solution for the controversy [from the point-of-view of the United States] is the use of the doctrine of "equitable apportionment" which requires that the waters of a drainage basin be shared EQUITABLY between states in which the basin is located. Under this doctrine Canada would have the right to make REASONABLE diversions, but the proposed diversions are unreasonable and moreover, the DOCTRINE DOES NOT CONTEMPLATE UNILATERAL DETERMINATION OF THE REASONABLENESS OF DIVERSIONS."¹¹⁰

In light of this statement it can be seen that, not only are the doctrines of prior appropriation and equitable apportionment similar, but in many cases the latter may prove to be in fact a harsher principle than the former from the point-of-view of the upstream riparian country. This owes simply to the fact that in its usual sense the doctrine of prior appropriation limits the right-of-use of the upstream state to the extent of presently-existing downstream development. Equitable apportionment on the other hand would more greatly restrict the right-of-use upstream in a large number of cases inasmuch as the downstream state must only show greater need regardless of the presence or absence of river works. It is thus something of a paradox that Canada should in one breath support equitable apportionment and yet be on record as having, on a number of occasions, been opposed to the doctrine of prior appropriation. And yet this has proven to be precisely the case as indeed Professor Johnson contended. During the course of the early negotiations of the Columbia a University of British Columbia-sponsored seminar concerning the subject of International River Basin Development¹¹¹ published the following conclusions:

- (1) the theory of strict territorial sovereignty should be rejected on the grounds of being too inflammatory and an impediment to co-operative development;
- (2) the *doctrine of prior appropriation* should be rejected as it facilitates development at too great a cost to the undeveloped;
- (3) *equitable apportionment* should be adopted for the reason of providing each co-riparian a reasonable and equitable share in the beneficial use of a river basin.¹¹²

Significantly enough the Seminar did not discuss, much less define, the principles of "reasonableness" and "equity" that should govern beyond saying that each case would be contingent upon its own particular facts, and nor did the group attempt to distinguish in anything other than name the various interpretations of the doctrines of prior appropriation and equitable apportionment.

More recently the IJC has recommended the application of the principle with respect to the Pembina River Basin in its 1967 report referred to *supra*. Here it was maintained that an equitable apportionment could be obtained where:

"... the ratio of the sum of the separable economic gains to the cost of the joint project works is the same for each participating country."¹¹³

Unfortunately this formulation of the principle does not make it any more certain, or any more easy to distinguish from the principle first propounded by the U.S. in its Libby dam application. There are two basic reasons that this is so:

¹¹⁰ *Supra* note 5, at 43. The emphasis is my own.

¹¹¹ See J.D. Chapman, *The International River Basin*, Proceedings of a Seminar on the Development and Administration of the International River Basin held under the auspices of the Regional Training Centre for United Nations Fellows, University of British Columbia, Publications Centre, U.B.C., 1963.

¹¹² *Ibid.*, at 21-25.

¹¹³ *Report of the International Joint Commission on the Co-operative Development of the Pembina River Basin*, October 1967, at 29.

- (1) to ratio the sum of the separable economic gains to the cost of the joint project works such that they are the same for each country does not affect the question of how the benefits of development should be apportioned necessarily. The ratios can be made comparable by restricting the scale of the project in that jurisdiction having the lowest benefit prospects, and maximizing the project scale in that jurisdiction having the higher benefits. IN OTHER WORDS THE CONDITION SET OUT BY THIS PRINCIPLE CAN BE EASILY FULFILLED BY THE PROCESS OF COST APPORTIONMENT AS IT CAN BE BY BENEFIT APPORTIONMENT.
- (2) the need for water use will be greater in the more developed area because of the greater demands placed upon the land. Thus the opportunities for economically-rewarding use in any future development will concentrate in developed regions, and BASIN-WIDE OPTIMIZATION WILL OCCUR THROUGH MAXIMIZING THE FLOW OF BENEFITS OF DEVELOPMENT TO THE AREA OF GREATEST NEED IN THE BASIN (i.e. a maximized appropriation of benefits past and future).

Thus, from the point-of-view of Canadian sovereignty the IJC's statement of the application of the doctrine is less than satisfactory. It would appear to amount to little more than an advanced restatement of the doctrine of prior appropriation; advanced in the sense that it not only allows past utilization to perfect a claim to basin resources, but in that it appears to suggest that future development should be undertaken so as to distribute the benefits in favour of those areas in greatest need. As it is defined, equitable apportionment represents continental resource allocation (i.e. insofar as it ignores political boundaries) and is destructive of Canadian sovereignty wherever Canada enjoys the position of upstream riparian.

In response to this shift of the international law it has been suggested that Canada has formally acquiesced to the principle that waters north of the forty-ninth parallel are properly the heritage of the continent as a whole, and not exclusively Canada's. Since 1964 there have been a series of water-export studies produced that exemplify the grounding premise of *equitable apportionment*; namely, that the paramount property right to water is vested in that party whose needs are greatest.

VI

THE IMPENDING ISSUE OF WATER EXPORT

This section will examine three export proposals: the North American Water and Power Alliance (or simply, NAWAPA), the Central North American Water Project (or CeNAWP), and the Great Replenishment and Northern Development Canal (or more briefly, the GRAND Canal scheme). In the case of each of these plans there are several common points of comparison, and many more common points of criticism. To avoid needless repetition, the

origin, nature, and general response in Canada and the United States towards the three plans will be considered, followed by a critical discussion of the failings, both legal and economic, of these and other massive water diversion schemes.

(a) *The North American Water and Power Alliance*

The scope of the North American Water and Power Alliance is nothing short of breathtaking. Its backers contemplate a water distribution system that would virtually cover the length and breadth of the continent. Ostensibly the scheme is the product of the Ralph M. Parsons Company, a worldwide engineering firm based in Los Angeles and New York City. But in actual fact their "concept" is not a very original one. The essentials of NAWAPA were advanced a number of years prior to the Parsons Company's studies in a "quasi-evangelistic publication entitled, "Technocracy."¹¹⁴ The present role of the Parsons Company in the scheme is itself a cause for some uncertainty. Some of the literature that discusses the plan refers to them as the "backer"¹¹⁵ of the proposal, while in other cases they are referred to as mere "sponsors"¹¹⁶ acting for another earlier organization of the same name as the project. In either case NAWAPA has benefited from a substantial measure of public support within the United States. A special subcommittee of the U.S. Senate's Committee on Public Works¹¹⁷ was formed to examine the project under the chairmanship of Senator Frank E. Moss, a Democrat from the State of Utah. Senator Moss was also responsible for a concurring "NAWAPA Resolution" which he entered into the *Congressional Record* as follows:

"Resolved by the Senate (the House of Representatives concurring), that it is the sense of the Congress that — (1) the President of the United States should refer the matter of the diversion of surplus Arctic water to the International Joint Commission with the request that an economic and engineering feasibility study be made and that the respective governments be informed of the results of such study by December 31, 1966; and (2) the President of the United States should invite the government of Canada to join in such referral."¹¹⁸

Apart from the political significance of this rather excited response to NAWAPA, the resolution is of note on two points. First, it called for an economic and engineering analysis to be completed in slightly more than a year's time.

It is perhaps being rather optimistic to suppose that a project that would at best take thirty years to complete, and cost in the vicinity of \$100 billions

¹¹⁴ Larratt Higgins, Address to the Woodsworth Foundation Conference on Continentalism versus Nationalism, *Resource Development: Integration or Cooperation*, November 12, 1966, at 6.

¹¹⁵ Senator Frank E. Moss, *The Water Crisis*, Praeger, New York, 1967, at 243.

¹¹⁶ J.S. Cram, *Water: Canadian Needs and Resources*, Harvest House, Montreal, 1968, at 140-141.

¹¹⁷ Special Subcommittee on Western Water Development. Apart from Senator Moss the Subcommittee's membership included Ernest Greening (Alaska), Lee Metcalf (Montana), Gaylord Nelson (Wisconsin), Hiram Long (Hawaii), and James Pearson (Kansas). The revised report of the Subcommittee was printed in January 1966 and was entitled "A Summary of Water Resources Projects, Plans, and Studies Relating to the Western and Midwestern United States."

¹¹⁸ *Congressional Record*, Senate, September 1, 1965, at 21780-21789.

based upon 1964 prices,¹¹⁹ could be appraised in so short a period of time. In this respect, the resolution can be interpreted as one barometer of the possibly naive enthusiasm that the scheme has been greeted with as well as perhaps being a reflection of the growing urgency of the U.S. water crisis.

Second, the resolution refers to what it terms "surplus Arctic water." In respect of this point NAWAPA's impact upon "Arctic waters" is minimal. The rivers to be diverted in the main flow from the Canadian Western Cordillera region into the Pacific Ocean. Further, the notion that such waters are in any event "surplus" is probably a specious premise, although more will be said of this below.

The underlying object of NAWAPA is rather simple. The scheme's proponents would have Canada divert anywhere from 120-250 M.A.F. from the western divide through the Rocky Mountain Trench to areas of need to the south and east. The principal Canadian drainage basins to be tapped include those of the Yukon, Tanana, Laird, Peace, Columbia, Fraser, Athabaska, Smoky, Oldman, Saskatchewan, Qu'Appelle, Assiniboine, Nelson, Albany, Abitibi, and Kaniapiskan Rivers. The Parsons Company admits that "... literally all of the inland rivers of British Columbia, except the Thompson are [to be]¹²⁰ used in NAWAPA."¹²¹ Approximately eighty-two per cent of this water, almost all of which is of Canadian origin, would be diverted to serve needs in the United States. Canada would retain roughly eighteen percent (at maximum)¹²² for domestic use.

Over and above the delivery of Canadian waters to American markets, NAWAPA would purportedly create the following secondary benefits:

- (1) A continental navigation system connecting the Pacific coast, James Bay, the Gulf of Mexico, and the Great Lakes-St. Lawrence navigation complex;
- (2) The generation of anywhere from 100,000,000 to 150,000,000 KW of hydro-electric power for use in the United States, Canada and Mexico;
- (3) The stabilization of the levels of the Great Lakes and St. Lawrence River system.

In total the plan would involve a huge drainage area of approximately 1,300,000 square miles. The material demands of NAWAPA are equally enormous. For example, it would use some 40,000,000,000 tons of copper and aluminum, necessitate the movement of 45,000,000,000 cubic yards of earth, require 500,000,000 cubic yards of cement, and 70,000,000 tons of steel. The project would necessitate an outlay of \$5,000,000,000 for construction equipment and tools, \$7,500,000,000 for engineering, \$25,000,000,000 for construction labour and \$10,000,000,000 for power and related facility equipment.¹²³

¹¹⁹ These are the Parsons Company's own estimates, *Cf. NAWAPA, North American Water and Power Alliance*, Brochure 606-2934-19, The Ralph M. Parsons Company.

¹²⁰ The insertion is my own.

¹²¹ *NAWAPA: Summary Report for Dominion of Canada*, The Ralph M. Parsons Company, Los Angeles, New York, Brochure No. 606-2934-22, July 8, 1964, at 15. The insertion is my own.

¹²² *Supra* note 126.

¹²³ *The Financial Post*, May 2, 1964.

The Parsons Company's tentative allocations of the consumptive and power benefits as between the various provinces and states of Canada, the United States and Mexico is:

NAWAPA: WATER AND POWER ALLOCATIONS

PROVINCE	WATER (acre feet)	IRRIGATED LANDS (acres)	POWER
Yukon			3,000,000
Columbia			30,000,000
Alberta			3,000,000
Saskatchewan	12,500,000	5,000,000	3,000,000
Manitoba	12,500,000	5,000,000	1,000,000
Ontario			2,000,000
P.Q.			1,000,000
TOTALS	25,000,000	10,000,000	43,000,000
STATE			
Washington			5,000,000
Alaska			5,000,000
Montana	4,600,000	2,146,000	5,000,000
N. Dakota	5,400,000	2,146,000	2,000,000
S. Dakota	5,400,000	2,146,000	
Minnesota			1,000,000
Michigan	6,400,000		1,000,000
Wisconsin	6,400,000		1,000,000
Illinois	6,400,000		1,000,000
Indiana	6,400,000		1,000,000
Ohio	6,400,000		1,000,000
Pennsylvania	2,500,000		1,000,000
N.Y.	2,500,000		1,000,000
Texas	11,700,000	4,668,000	2,000,000
Oklahoma	5,800,000	2,314,000	
Kansas	7,000,000	2,785,000	
Colorado	9,300,000	3,718,000	1,000,000
Nebraska	5,800,000	2,324,000	
Idaho	2,300,000	926,000	4,000,000
Wyoming			1,400,000
Nevada	4,600,000	1,858,000	4,000,000
Oregon	5,400,000	1,859,000	2,000,000
Utah	6,900,000	2,758,000	3,000,000
California	13,900,000	5,598,000	5,000,000
Arizona	6,900,000	2,758,000	3,000,000
New Mexico	7,500,000	3,021,000	2,000,000
STATE			
Baja California	2,300,000	930,000	1,000,000
Sonora	12,300,000	4,880,000	1,000,000
Chihuahua	5,000,000	2,012,000	1,000,000
TOTALS	19,600,000	7,822,000	3,000,000*

*These allocation figures appeared in a Parsons Company newsletter. As far as Canada is concerned, the totals have little reliability for the 25 MAF and the 43,000,000 KW have both been changed in later Company publications to 22 MAF and 30,000,000 KW respectively.

Canadian reaction to NAWAPA was rather mixed. At one extreme, Professor Trevor Lloyd of McGill suggested that:

"Its immediate objective appears to be, as the phrase goes, 'maximize' the amount of engineering construction possible during the next thirty years at a time when the industry may be less active than it has during the last quarter century."¹²⁴

Some Canadian politicians responded less cynically. Prime Minister Pearson suggested to an American audience that the exporting of water could be as important to Canada as the export of wheat or oil.¹²⁵ Jack Davis, then the member of Parliament for Coast-Capilano, and later to become Parliamentary Secretary to Prime Minister Pearson, advocated that Canadians think in terms of "a Great Northern Water Plan" to divert Canadian waters to the areas of need to the south and east of both countries.¹²⁶ There was dissent however within the ranks of government. Arthur Laing, who was then Minister of Northern Affairs and National Resources, was quoted¹²⁷ as being opposed to the scheme. In British Columbia, Premier Bennett referred to NAWAPA's plan to divert his province's water resources as "ridiculous".¹²⁸

In short, reaction in Canada to NAWAPA ranged between extremes. The solitary point about which there was more or less a consensus was the notion that the scheme was premature with respect to a number of feasibility questions that demanded prior investigation,¹²⁹ and in relation to the estimate of the amount of water that might be available from Canada. Canada at this point had not undertaken an inventory of domestic water supplies, and was therefore not in a position to assess that quantity which might be "surplus" to her long-term requirements. Thus, NAWAPA, after a flurry of initial excitement and international controversy lapsed into temporary oblivion.

But it would be an error to conclude that the demise of NAWAPA in terms of public attention implies the demise of the more general issue of massive water export. If the Parsons Engineering Company accomplished anything with NAWAPA it was to open up the question of large-scale diversions and keep it current since 1964. In this context, NAWAPA was the mere antecedent of progressively more refined versions to follow. Two such proposals that have subsequently appeared are described *infra*.

(b) *The Central North American Water Project*

The Central North American Water Project is a good illustration of the gradual sophistication of the Parsons concept. But it also is of interest for the additional reason that its author is the Canadian head of the federal Department

¹²⁴ Professor Trevor Lloyd as cited by Larratt Higgins, *supra*, note 126, at 7, and originally appearing in *A Water Resource Policy for Canada*, Canadian Geographical Journal, July 1966.

¹²⁵ As reported in the *New York Times*, Sunday, October 17, 1965.

¹²⁶ Jack Davis, *The Great Northern Water Plan*, address to the 52nd General Conference, Pacific Northwest Trade Association, Prince George, B.C., September 14, 1964.

¹²⁷ "Quest for Cool Clear Water is a Multibillion Dollar Business", *New York Times*, September 12, 1965, at 12.

¹²⁸ Address to the Royal Society of Canada, A.G.L. McNaughton, as cited in Claude E. Dolman, *Water Resources of Canada*, The University of Toronto Press, Toronto, 1967, at 17.

¹²⁹ *Ibid.*, at 17 and *passim*.

of Energy, Mines and Resources, Water Resources Planning Branch, E. Roy Tinney. In an article which appeared in the September 1967 *Bulletin of the Atomic Scientist*, he suggested that NAWAPA was an expensive and needlessly crude means of exporting Canadian water, and moreover, impracticable in terms of the development of low-cost hydroelectric power. He further contended that not enough groundwork had gone into NAWAPA to permit even a certain statement about its feasibility,¹³⁰ and that in any case there were *prima facie* superior alternatives at hand (which should be subjected to detailed analysis before NAWAPA should be considered) having in mind the following three factors:

- (1) The areas of greatest demand/need for water on the continent;
- (2) The natural geography of the continent vis-à-vis the most optimal export route; and
- (3) The need to minimize the Canadian resources (e.g. land, existing settlements, and industries, etc.) that must be foregone to create a diversion system through which water can be exported.

In light of these criteria, it was argued that the so-called "Central North American Water Project" deserved some consideration. CeNAWP, comparatively-speaking, minimizes the violence done to the underlying geography to create the diversion system insofar as the engineering opportunities inherent to the natural features of the land have been maximized. For example, unlike NAWAPA, CeNAWP avoids the necessity for massive artificial reservoirs, and instead would exploit some 50,000 square miles¹³¹ of natural lake surface for its storage requirements. These lakes (which include Great Bear Lake, Great Slave Lake, Lake Athabaska, and Lake Winnipeg) would be connected from north to south by a series of linking canals where necessary. By this means, Tinney suggests that some 800,000 square miles of drainage could be exploited, making it possible to deliver some 150 M.A.F. of Canadian water to the United States per annum.¹³² The pumping required to expedite this result, when compared with the similar demands of the Parsons scheme, are minimal, for once again, CeNAWP would derive full advantage from the fact that the topography from the Arctic to Lake Winnipeg is almost virtually flat, and in addition the relative value of the arable land to be flooded is diminutive in comparison with the real estate that would be pre-empted by NAWAPA.

Finally, CeNAWP is more efficient as a water distribution system inasmuch as it redirects the continent's water directly to the regions in greatest need. Very approximately, these are as follows:

- (1) A 300-mile-wide strip which runs parallel to the eastern foothills of the Rocky Mountains commencing in the State of Montana and extending in an arc to the West Texas region;
- (2) A 125-mile-wide strip beginning at El Paso, Texas and following the Mexican frontier westward to the Techachapi Mountains in California;
- (3) Northeastern Nevada and the Great Salt Lake region of Utah;
- (4) The populated centres of Southern California.

¹³⁰ Although he concluded that there was no reason to suppose that it encountered insurmountable problems, and that therefore it could in all probability be built.

¹³¹ *Bulletin of the Atomic Scientist*, September 1967, at 21.

¹³² *Ibid.*, at 23.

As was true of NAWAPA, rather extravagant claims are made about the potential rewards to be derived from CeNAWP. It is contended, for example, that Canada would obtain the following benefits:

- (1) A navigation system which would extend from the Arctic Ocean to the Great Lakes;
- (2) The reclamation of extensive low-lying north central Canadian marshlands;
- (3) Relief from the flood hazards frequently arising in these same areas;
- (4) New power sources over the course of the Churchill to Lake Winnipeg drop, Lake Winnipeg to Superior drop, and incremental power over the length of the Great Lakes/St. Lawrence drop;
- (5) Stabilization of Great Lake levels;
- (6) New water and surplus power for export to the United States.¹³³

There has been little if any public discussion of CeNAWP in Canada or in the United States. One can only assume that, to the extent that it is an advancement upon the original NAWAPA concept, it would be supported on both sides of the border by most persons who favoured the original Parsons Company proposal. A third water export study, however, has engendered considerably more commentary, although its scope is more restricted than has been true of either NAWAPA or CeNAWP.

(c) *The Great Replenishment and Northern Development Canal*

The Great Replenishment and Northern Development, or GRAND Canal plan was conceived by a Sudbury engineer, Thomas W. Kierans. The scheme itself is, by the admission of its author, rather tentative and was advanced only to "... stimulate the interest of all governments in setting up authoritative benefit-cost studies."¹³⁴ The proposal is aimed at fulfilling two objectives: first, the control of the Great Lake levels and St. Lawrence River flow, and second, the delivery of exportable water from the Canadian north to the United States. The method is to reverse the flow of a sizeable portion of the James Bay watershed run-off just before it would "... otherwise be lost to the sea and [divert] it to the Great Lakes."¹³⁵

The GRAND Canal plan at first blush appears to offer a rather imaginative solution. It is proposed that the flows of the Pontax, Rupert Broadback, Nottaway, and Missisicabi Rivers be collected in a "fresh water reservoir" in the southern extremity of James Bay. Integration of this reserve and the salt water of the Bay would be prevented by means of an isolating dyke system linking the eastern and western shores of the Bay with what appears to be Charlton Island.¹³⁶ The waters impounded by this catchment would be re-directed southwards by a combination pump and gravity fall system through the Harricanaw River whose entire flow would be reversed. This water would

¹³³ *Ibid.*, at 23.

¹³⁴ Objectives and limitations, *Great Replenishment and Northern Development Canal: Provincial, National, International Multi-Purpose Benefits*, published by Thomas W. Kierans, Sudbury, Ontario, at 1.

¹³⁵ *Ibid.*, at 1.

¹³⁶ The map of the project region supplied by the Kierans Engineering Company does not identify the island by name. It is positioned roughly in the same locale as is Charlton Island but is shown as being more of the dimensions of Akineiki Island lying to the northwest.

in turn be diverted to the east and west via the Ottawa and French Rivers and thence to the Great Lakes/St. Lawrence system.

The GRAND Canal plan would exploit a drainage of some 64,000 square miles and involve a total run-off of 78,000 cubic feet per second. This, in other words, would involve more than fifty percent¹³⁷ of the fresh water drainage into the lower portion of James Bay.

Because the collection pool of fresh water is in the Bay itself, Kierans argues that a southern diversion can be made:

"... without depriving anyone in Canada now or in the future of the natural flow of any rivers since the fresh water so collected would be obtained 'just before it would be otherwise lost to the sea'."¹³⁸

Kierans argues that the fresh water in issue is merely "recycled" by the GRAND Canal, and implicitly that, as this is an otherwise "lost" resource, its sale should pose first of all no loss to Canada, and second of all, no threat to the national sovereignty.

The estimated construction costs of the GRAND Canal plan range between a low of \$1,200,000,000 and \$2,000,000,000 for a system which would initially only deliver 24,000 cubic feet per second.¹³⁹ From the James Bay fresh water catchment to the height of land lying to the south, eight damsites are needed whose costs range from \$50,000,000 to \$85,000,000¹⁴⁰ as well as the east and west dykes in the Bay. Approximately 2,000,000 horsepower would be needed to fulfill the project's pumping requirements on the Harricanaw River. Over the course of the natural fall of the land to Lake Huron a number of additional project works are contemplated including two channels, widening of water beds, pumping facilities, and a series of level control dams.

It is maintained by Kierans that the GRAND Canal offers Canada the following benefits:

- (1) Profit from the sale of fresh water to some areas of water deficiency in the United States;
- (2) Hydroelectric power from the fall of new water into the Great Lakes/St. Lawrence complex;
- (3) A barge canal from James Bay south to the Great Lakes and lower Ottawa River;¹⁴¹
- (4) Economic development of the eastern north;¹⁴²
- (5) Flood and drought control of the Great Lakes, St. Lawrence and Ottawa Rivers;
- (6) Reduction of pollution in the Great Lakes, St. Lawrence and Ottawa Rivers.¹⁴³

¹³⁷ The total drainage area served by the Lower James Bay region is 110,000 square miles.

¹³⁸ *Ibid.*, at 32.

¹³⁹ *Ibid.*, at 47.

¹⁴⁰ *Ibid.*, at 50. The height of land is roughly 960 feet above James Bay.

¹⁴¹ Kierans suggests that this will be of low cost and for this reason will assist in the development of the large iron ore reserves of the James Bay area.

¹⁴² Thomas W. Kierans, *The GRAND Canal Concept*, an address, Sudbury, 1960.

¹⁴³ *GRAND Canal Benefits to Canada*, T.W. Kierans. There are in total, 18 Canadian "benefits" listed in other Kierans publications, many of which are at best marginal by this definition and most of which are disputable in any case. For example, one suggested benefit is the elimination of "... undesirable tensions between Canada and the United States." Allowing for an American claim as against waters of Canadian origin would seem arguably to set off the risk of more undesirable tensions than it would relieve. To call this a "benefit" is tantamount to suggesting that sovereignty itself should be given up for the obvious benefit of improving foreign relations.

While the GRAND Canal proposal has had a longer history of public commentary than either NAWAPA or CeNAWP, because of its relatively smaller scale it perhaps has not provoked the same degree of extreme reaction. On April 5, 1960 the member of Parliament for Fort William, Ontario, proposed a federal study of the project be undertaken and it was in consequence briefly considered by the Parliamentary Committee on Mines, Forests, and Waters. Kierans himself appeared before this body to advocate more intensive study of his proposal. The M.P.'s for Chapleau Quebec and Pontiac Temiskaming also spoke in support.¹⁴⁴

A number of non-governmental organizations have also endorsed the proposal to give the plan more detailed study. Among these can be included the North Eastern Ontario Development Association and the Quebec and Ontario Chambers of Commerce.¹⁴⁵

The GRAND Canal drew rather strong support (as one might suppose) in the United States. The Great Lakes Commission of the United States passed a resolution in 1961 calling for studies of similar diversion proposals.¹⁴⁶ Senator Alex Wiley of Wisconsin lent his support to such a study as did Governor Kerner. Predictably enough, Senator Moss also has counted himself as being among the plan's advocates. The GRAND Canal, he suggests, would, were it possible to iron out the international difficulties, provide a valuable precedent for NAWAPA or some modified¹⁴⁷ version of it.¹⁴⁸

In summary, the three water export schemes described above suggest that massive continental water planning has promise of becoming a critically important issue of Canadian-American relations over the course of the immediate decade. All of the necessary elements for this growth are present. First, is the widespread alarm being felt in the United States in the face of what appears to be dwindling per capita water supplies, and the deteriorating quality in many cases of this same limited resource. Second, is the rather enthusiastic support given to export proposals such as NAWAPA from within the United States revealing perhaps a measure of desperation in the face of the internal problems of quality and quantity scarcity. Third, the ambivalence shown to date by Canada vis-à-vis the export issue may possibly encourage the Americans to press for an early agreement before attitudes in Canada have a chance to harden and the presently favourable negotiation opportunity passes. Fourth as shown by NAWAPA, CeNAWP, and Kierans' GRAND Canal plans, an impressive amount of thought has already been devoted to the question, and fifth, inventories of accessible water supplies are now being conducted in Canada in an attempt to estimate domestic requirements over the foreseeable future. When all of these factors are taken together, it would seem probable that the issue of continental water transfers is rapidly moving from the drawing board stage to that of the negotiating table.

¹⁴⁴ *Supra*,

¹⁴⁵ *Ibid.*

¹⁴⁶ *Ibid.*

¹⁴⁷ The GRAND Canal would pre-empt the necessity for having NAWAPA's western feeder system into the Great Lakes and thus some modification would be unavoidable.

¹⁴⁸ *Supra*, note 115, at 248.

However, two additional features present possibly overwhelming difficulties for Canada as the exporting nation. First, it would seem that the growing pressure for some form of continental water pact potentials a situation whereby Canada will be committed to an export agreement whose economic, social, and ecological consequences remain unappreciated. Second, and perhaps more seriously in terms of preserving the sovereign integrity of the country, this same rush to strike such an agreement may cause Canada to overlook the very real dangers that arise from the ambiguities in the present trans-boundary water law in force between the two countries which have been described above. Both factors as they relate to the question of water export in the future will be discussed in the succeeding sections.

VII

WATER EXPORT AND SOME ECONOMIC, SOCIAL AND ECOLOGICAL CONSIDERATIONS

Water diversions of the magnitude contemplated by any of the schemes discussed above introduce economic, social and ecological intricacies which demand careful and complete attention. NAWAPA, CeNAWP, and the GRAND Canal plan, as presently described by their respective proponents overlook many of these complexities, and to this extent the potentials for economically rewarding water transfers appear to have been exaggerated.

The difficulties occasioned by the schemes divide into four general categories: namely, problems that relate to the geographical backdrop of the diversion areas, oversights in cost estimates which tend to distort the already rather crude benefit-cost calculations, ecological variables, and the presumption made that Canada will be able to successfully negotiate a sliding scale recapturing provision that will preserve its sovereignty over the waters to be diverted. The specifics of each of these general categories has been detailed *infra*.

(a) *Geographical Oversights*

Of the three schemes discussed, NAWAPA encounters the most significant problems of geography, so many in fact that one critic was moved to suggest that:

"Clearly we have here an exercise in sophomore civil engineering which has received far greater attention than it ever deserved. It underlines the danger, all too familiar to geographers, of allowing the drawing office to replace acquaintance with the land and the people as they really are."¹⁴⁹

One example is the Parsons' planners' apparent failure to consider the value of arable land in mountainous British Columbia.¹⁵⁰ NAWAPA would

¹⁴⁹ Professor Trevor Lloyd, as cited by General the Hon. A.G.L. McNaughton, address to the Royal Society of Canada, *Water Resources in Canada*, edited by Claude E. Dolman, University of Toronto Press, 1967, at 18. *Supra* note 128.

¹⁵⁰ See *NAWAPA: Summary Report for Dominion of Canada*, the Ralph M. Parsons Company, Los Angeles and New York, Brochure 606-2934-22, July 8, 1964, at 34-36, and more generally, *NAWAPA: North American Water and Power Alliance*, The Ralph M. Parsons Company, Los Angeles, New York, Brochure 606-2934-19, undated, at 3-10.

involve the inundation of much of this precious territory.¹⁵¹ Another example can be found in the scheme's ambitious navigation system. It again appears to reflect rather careless research, for most of the system lies in northern regions that have less than fifty frost-free days per annum.¹⁵² This naive view of the underlying geography is also evident in the proposal to create a navigation connection between James Bay and the Great Lakes, for the tidal flats of the former are so low, and so extensive as to pre-empt navigation for even the smallest of vessels,¹⁵³ let alone ocean-going shipping.

But one of the most significant oversights of CeNAWP, NAWAPA, and the GRAND Canal plan¹⁵⁴ concerns the common proposal to feed additional water into the Great Lakes/St. Lawrence River complex for its potentials rather than grave flooding hazards. This is true for two important reasons. First, in the past it has been tenuous to predict lake level variations with any hope of accuracy beyond several weeks.¹⁵⁵ While the Great Lake levels follow a rough cycle of highs and lows concomitantly with fluctuations in annual precipitation rates,¹⁵⁶ they do not conform to so consistent a pattern such that reliable predictions can be made about level fluctuations over the long term.¹⁵⁷ Notably, this is despite the existence of accurate data as far back into time as the early 1860's.¹⁵⁸ It is important to stress in this connection that the ability to make precise forecasts about the variation of lake levels is absolutely crucial to any plan that would involve artificially augmenting Great Lake water inflows, for the second interesting feature of the system is that a volume of water added to

¹⁵¹ The most significant flood zone in B.C. is of course the Rocky Mountain Trench and would involve the loss of its unexplored mineral wealth, as well as its timber and agricultural potential as noted briefly *supra*. For this reason, many residents of the province responded less than enthusiastically. One, for example, wrote:

"... inundating the narrow oasis of habitable land in our desert of mountains is tantamount to selling or leasing the whole area involved to another nation. Canadians will obtain no direct benefit other than financial from a great area of British Columbia if, without modification, the North American Water and Power Alliance's concept is carried through. Our benefits under NAWAPA will then derive solely from the sale or lease of the flooded valleys."

Cf. Donald Waterfield, *Continental Waterboy: The Columbia River Controversy*, Clarke, Irwin and Company, Toronto, 1970, at 213.

¹⁵² Climate Plate, *Regional Atlas of British Columbia*, The Queen's Printer, Victoria, British Columbia, 1965.

¹⁵³ In fact, according to one geographer, this even includes boats no larger than canoes, *supra*, note 124.

¹⁵⁴ It should be noted that of the three plans, the GRAND Canal may alone facilitate James Bay navigation owing to the proposal to dyke to the southern extremity of the Bay. Water levels covering the tidal flats would presumably be raised for at least some portion of the year. Just what this period would be, or how much the levels would be raised and whether or not navigation would thereby be made feasible is unknown at the time of writing.

¹⁵⁵ In other words, level changes can be predicted only so well as can changes in regional weather patterns. See *Great Lakes Water Levels*, issued by the Water Resources Branch under the authority of the Hon. Arthur Laing, P.C., M.P., B.S.A., Minister of Northern Affairs and National Resources, 1964, at 9 and 14.

¹⁵⁶ *Ibid.*, at 8-9. See also *Background Material on Water Levels*, prepared for use in connection with the meetings of the House Standing Committee on Mines, Forests, and Water, October, 1964.

¹⁵⁷ See *Hydrograph of Monthly Mean Levels of the Great Lakes*, published by U.S. Army Engineering District, Lake Survey. See also, *Statement to the Ontario Legislature* by Robert J. Boyer, M.P.P., Second Vice-Chairman, Ontario Hydro, on Great Lakes Water Levels, Wednesday, February 3, 1965.

¹⁵⁸ *Ibid.*

Lake Superior will not alter the lake levels as a whole for three or more years,¹⁵⁹ and cannot be scientifically measured on the mainstream St. Lawrence for over a decade.¹⁶⁰ For this reason, water increments of the magnitudes involved in any of the three plans could, if augmented by a naturally occurring period of high precipitation, create flooding with unprecedented powers of destruction.¹⁶¹

In assessing this danger it is worth bearing in mind that a significant portion of the industrial heartland of both countries lies immediately adjacent to the Great Lakes and St. Lawrence River system. So too does an eighth of the North American population.¹⁶² Chicago, Detroit, Windsor, Hamilton, Toronto, and Montreal would all be exposed to the danger of flooding,¹⁶³ as would all towns and cities bordering the lakes.

It is possible that one day a solution to this problem of predicting lake levels may be uncovered, but as of the moment it is abundantly clear that:

- (1) No scheme such as NAWAPA, CeNAWP, or the GRAND Canal plans can be seriously entertained until the solution is found; and
- (2) The solution is itself completely contingent upon vast improvements of our present abilities vis-à-vis long-range weather forecasting, given precipitation to be the major source of Great Lake water inflows.¹⁶⁴

At the present moment there does not appear to be any cause for optimism that this problem will be quickly solved.¹⁶⁵

(b) *Cost Oversights*

The geographical omissions described above will all import additional cost factors that will have to be considered in the case of each plan. For example, with NAWAPA, not only will the value of the arable land submerged have to be offset by consequent project benefits, but so too will the loss of the

¹⁵⁹ *Water Levels in the Great Lakes*, Bank of Montreal Business Review, February 26, 1965, at 2. See also *supra* notes 155, 156 and 157.

¹⁶⁰ J.S.Cram, *supra* note 151, at 147.

¹⁶¹ "Yet . . . strong words of caution should be said . . . a danger might exist of diverting water into the Great Lakes followed by a subsequent year of heavy rain and snow. Taken together they might cause flood conditions that it would then be too late to control."

Great Lakes Water Levels, *supra*, note 155, at 14.

¹⁶² See William Bowles, *Water Shortage is a Frame of Mind*, Fortune Magazine, April, 1965.

¹⁶³ So too, of course, would all the lesser cities, towns, farms and industries bordering the lake shores.

¹⁶⁴ See *supra*, notes 155, 156, 157 and 162.

¹⁶⁵ As one authority noted in this connection during the peak of the most recent Great Lakes drought:

"On the basis of probabilities, Weather Bureau meteorologists are pretty confident that the jet stream will move southward again (as it has before), that precipitation in drought areas will get back to normal patterns, and that someday the Lake Michigan problem will again be outflow, as it was in the early 1950's. This confidence about the future average precipitation is not based upon any ability to trace continuous chains of courses and effects into years ahead—in that sense weathermen can only see THIRTY DAYS AHEAD AT MOST, AND THEN ONLY DIMLY. Instead the confidence rests upon the conviction that nature does not proceed by way of caprice."

See *supra*, note 162.

Rocky Mountain Trench towns of Whitehorse, Prince George and Golden.¹⁶⁶ In at least its initial form, the Parsons engineers also ignored the Columbia,¹⁶⁷ Kootenay¹⁶⁸ and Peace River hydroelectric developments,¹⁶⁹ as well as Canadian investigations regarding possible development of the Yukon-Atlin-Taku complex,¹⁷⁰ Laird River, Skeena River, and Fraser River.¹⁷¹ In addition, the silver, lead, zinc, placer gold and other mineral reserves of the southern Canadian trench¹⁷² have been forgotten, along with approximately 163 sawmill operations having capacities ranging from 10,000 to 150,000 board feet per season,¹⁷³ a number of extensive dairy and beef ranches,¹⁷⁴ and numerous recreational areas¹⁷⁵ serving residents of both British Columbia and Alberta.

The navigation systems of NAWAPA, CeNAWP and perhaps the GRAND Canal plan also bring into issue the inherent economy of canal works as a means of bulk transport as opposed to the alternative modes such as railroads and highway trucking services. In light of this comparison, it is clear that rail and highway transport have a large initial advantage in northern climates inasmuch as they can at least function twelve months of the year.¹⁷⁶ The northern canals, on the other hand, would be frozen over for anywhere from three to five months¹⁷⁷ and if dependable all-season transport was required, it would be necessary to construct alternate transportation facilities adjacent to the canals.¹⁷⁸ Because of this capital redundancy it is rather doubtful that the economy of summer barge transportation could ever be so great as to justify the initial investment.¹⁷⁹ In addition, the capital costs of canals ensure that their routes would be, in the main, fixed. Railroads and highways are, in this respect, more flexible, owing to the proportionally lesser amounts of capital involved.¹⁸⁰

¹⁶⁶ James Laxer, *The Politics of the Continental Resources Deal: The Energy Power Game*, The New Press, Toronto, 1970, at 37.

¹⁶⁷ See Plate 3, *Western Water Development*, Special Subcommittee on Western Water Development, Committee on Public Works, United States Senate, January 1966, U.S. Government Printing Office, Washington, 1966.

¹⁶⁸ See Plate No. 7, *NAWAPA: Summary Report for Dominion of Canada*, *supra* Note 162. Libby Dam, it will be noticed, was ignored at this stage of the proposal.

¹⁶⁹ See Plate No. 6, *ibid.* The W.A.C. Bennett Dam (or Portage Mountain Dam as it then was) appears not to have been included, although NAWAPA contemplates a series of structures on the river.

¹⁷⁰ This project was first considered in the mid-1950's by the Ventures-Frobisher group.

¹⁷¹ See Plate No. 6, *supra*, note 150. No consideration was given to proposals such as Moran for the Fraser. See also, *supra*, note 149.

¹⁷² Resources Plate, *Regional Atlas of British Columbia*, *supra*, note 152.

¹⁷³ Forests Plate, *ibid.*

¹⁷⁴ Agricultural Plate, *ibid.*

¹⁷⁵ Lake Windermere is one example. The loss of part of the lakeshore as a consequence of the proposed Columbia-Kootenay reservoir was a very large factor weighing against Sequence IXa. NAWAPA would adversely affect this and many more such areas.

¹⁷⁶ It is of course also true that operation costs in the cases of both modes rises substantially during winter owing in part to snow clearing requirements.

¹⁷⁷ Climatic Regions, *The Canadian Desk Atlas of the World*, 2nd Edition, Oxford University Press, Toronto, 1963.

¹⁷⁸ The problems connected here arise in spring and autumn when the canals would undergo the transition from ice to water and vice-versa. Presumably, they could be used as a means of travel when frozen over.

¹⁷⁹ That is to say, the investment necessary to adapt the plans for navigation and not the total investment necessary to realize the canals.

¹⁸⁰ That is to say, railroads and trucking services rely upon less immovable real capital per ton-mile of cargo for the simple reason that the average cost of road surfaces and rail ties is less per unit distance than are canals.

Even more basic, the proponents of the three plans have assumed that there is a water shortage in the United States. It should be noticed that not all are in agreement,¹⁸¹ and of this number some have¹⁸² argued that one of the costs of importing Canadian water will be a needlessly continued waste of presently despoiled supplies. Briefly, this argument runs as follows: the present U.S. crisis derives not from a scarcity of water *qua* water,¹⁸³ but rather a scarcity of clean potable water, and thus the alternative to tapping Canadian supplies is to instead institute clean-up campaigns of presently polluted water now available in the United States. In this regard to institute NAWAPA, CeNAWP, or the GRAND Canal would be taking the "easy way out" in terms of avoiding the otherwise present necessity of having to abate the rapidly compounding pollution problem. To the extent that water export would decapitate the political pressure to clean up domestic water resources it would ultimately result in more harm than good for the U.S.

In yet another sense the plans require careful exploration; namely, as concerns the inflationary impact such projects as NAWAPA and CeNAWP, and the proportional growth of governmental economic involvement that would be necessary to realize either of them. In the case of NAWAPA, the Parsons Company estimates a total construction impact of \$7,000,000,000 per year for twenty years¹⁸⁴ upon the G.N.P.'s¹⁸⁵ of the three continental economies. Injections of this magnitude would seem to raise a very serious issue with respect to sector inflation,¹⁸⁶ for with so much of the continental work force and productive capacity engaged in NAWAPA, and the concomitant falls in unemployment¹⁸⁷ and rises in mean incomes that would be the necessary result (i.e. given construction to be a relatively speaking labour-intensive activity) it would seem inevitable that wages and consumer good price indices would "skyrocket" over the short term, barring substantial and rapid changes in productivity.¹⁸⁸ In this regard it is of note that the proximate productivity effects of NAWAPA, CeNAWP, and the GRAND Canal are confined to the realms of agrarian

¹⁸¹ See Gene Marine, *America the Raped*, Discus Books, Avon, New York N.Y., 1969, at 222; and Donald E. Carr, *Death of the Sweet Waters*, Berkley Publishing Corporation, New York, January 1971, at 43, for two examples of U.S. dissent from the notion that NAWAPA is needed to augment U.S. supplies.

¹⁸² See A.G.L. McNaughton, *Address to the Royal Society of Canada, Water Resources of Canada*, *supra*, note 128, at 16-24, and *Death of Sweet Waters*, *ibid*.

¹⁸³ See *Fortune Magazine*, *supra*, note 174 In this regard Bowles wrote:

"... warnings that the U.S. is running out of water rest on wobbly assumptions and are contradicted by the facts of nature. What's short is not water but good sense in using it."

¹⁸⁴ Construction, engineering, and supply investments would be approximately \$2 to \$3 billion annually (i.e. compared with \$3 to \$4 billion annually in the U.S.) See *NAWAPA: North American Water and Power Alliance*, *supra*, note 150, at 8.

¹⁸⁵ Gross National Products.

¹⁸⁶ In particular, the inflationary effects of these projects would of course be felt first in the construction, building, and material supply trades.

¹⁸⁷ The enormous geographical spread of the projects would make them rather useful as public works designed to ease unemployment for the problems of immobility would be reduced. There has of course been a rather long tradition of water resource developments taking place merely to raise employment levels. The U.S. Grand Coulee Dam was one such case. The recent Quebec announcement of a massive James Bay project is yet another.

¹⁸⁸ In short, too much money would chase too few goods.

production¹⁸⁰ in the case of the first two, and primary resource extraction and the transportation industries in the case of all three.¹⁰⁰ While the latter will to some degree mitigate the spectre of inflation, the former will only aggravate it (i.e. lower food prices will release more buying power into the consumer non-durable sectors). In net it is doubtful that productivity increases could maintain pace with the rapid rises in demand without stringent public controls over both prices and incomes being instituted as work on whichever scheme chosen was initiated.

It is also significant perhaps, that the enormity of NAWAPA,¹⁰¹ CeNAWP,¹⁰² or the GRAND Canal¹⁰³ plan are such as to put them beyond the realm of private investment. It is apparent that any one of them would require massive public financial support. For this reason a substantial public reassessment of the role of government in our notionally "private economies" would be necessary. Government, for example, would have to acquire new spending areas over and above a project such as NAWAPA as a means of effecting its counter-cyclical controls over the economy, for project outlays could not be varied greatly for two reasons. The labour intensity of any one of these projects would make the overall welfare effects simply too great as a first point. Second, design sequences would no doubt prevent capricious variations of project expenditures in response to changes in the amplitude of the business cycle.

Many of the other costs of NAWAPA, CeNAWP, or the GRAND Canal which would be uncovered in the event that detailed benefit-cost studies were undertaken have been simply ignored by the proponents of the plans. As was briefly noted above, in the guise of simplifying the analysis of the productivity of three schemes, the land and water resources that Canada will forego appear to have been assumed valueless.¹⁰⁴ The literature concerning all of the diversion plans, for example, refers to "unused" water¹⁰⁵ flowing "wasted"¹⁰⁶ into the sea. Even if we were to accept this as a premise, it does not therefore necessarily follow that Canadian water is without value and will forever remain so unless the country accepts one of these proposals. Quite to the contrary, there are

¹⁸⁰ As one critic noted:

"In a sense, NAWAPA is another agricultural pork barrel, although it would be for the farmers of three countries, rather than for farmers of one or two states."

Cf. Donald E. Carr, *Death of the Sweet Waters*, *supra*, note 181, at 212.

¹⁰⁰ The Parsons Company claims in this regard that:

"NAWAPA would increase the annual national income from agriculture, livestock, mining and manufacturing by approximately \$9 billion annually [in Canada]."

Cf. *NAWAPA: North American Water and Power Alliance*, *supra*, note 150, at 9.

¹⁰¹ The Parsons Company does not supply much cost data beyond asserting that total construction costs would amount to \$100,000,000,000.00 at 1964 prices.

¹⁰² There is no comparable cost data for CeNAWP to date.

¹⁰³ Cost estimates range from \$1.2 to \$2 billion depending upon the nature and capacity of pumping, power, and navigation facilities to be provided.

¹⁰⁴ It should be noted that the benefit-cost estimates contained in each of the proposals are crude in the extreme. None, to the writer's knowledge, has been subjected to a full-blown benefit-cost analysis, and for this reason the purported benefits claimed of each one should be viewed with some suspicion.

¹⁰⁵ See for example, *NAWAPA: North American Water and Power Alliance*, *supra*, note 150, at 4, and *Great Replenishment and Northern Development Canal*, Thomas W. Kierans, Sudbury, Ontario, at 1.

¹⁰⁶ *Supra*, note 150, at 3.

numerous alternative employments for the water resources involved, and further, many alternative means of obtaining the benefits which have been ascribed to the three plans without the necessity of a water export.

For example, the NAWAPA proponents contend that their scheme will "provide" Canada with at least 22 M.A.F. of water,¹⁹⁷ 30,000,000 K.W. of power,¹⁹⁸ (and a trans-Canada navigation system). It is suggested in turn that this "delivery" of water will have a favourable impact upon land values (i.e. via raising agricultural productivity)¹⁹⁹ in Western Canada, much to the benefit of Canadian agrarians, the thousands engaged in agricultural services, and the farm machine industries, as well as the federal and provincial tax revenue bases (which would be increased).²⁰⁰ In addition, it is argued that the reservoirs will prove to be an important recreational source around which wild-life will for some unexplained reason²⁰¹ flourish.²⁰² There can be little doubt that, on the basis of current projections of the National Energy Board,²⁰³ Canada is in need of more power. Nor is there much dispute that an increment to at least the prairie water supply base would be useful.²⁰⁴ But neither need is so pressing that the cost of obtaining additional water and power is no longer important. It is very likely, for example, that all of the ten odd individual diversion schemes which have been considered²⁰⁵ as a means of delivering more water to the prairies could provide it at a lower cost and at the same time circumvent all of the international complications that are entailed in a water export. So far as power generation is concerned, NAWAPA appears to be less practicable as an alternative than a number of present, less ambitious northern development possibilities in both Canada and the United States. For example, the Alaskan Rampart Dam project on the Yukon River was to provide only 5,040,000 KW and at that was thought to be too far in advance of projected

¹⁹⁷ This figure is an initial one only. According to the Parsons Company, 19 M.A.F. of this figure would be "arbitrarily allocated" for agrarian uses and 3 M.A.F. allocated to municipal and industrial use. The ultimate delivery of 110 M.A.F. would be divided 100 M.A.F. and 10 M.A.F. among these user categories respectively. See *NAWAPA: Summary Report for Dominion of Canada, supra*, note 150, at 39 and 43.

¹⁹⁸ Actual generation in Canada is anticipated to be 60,000,000 K.W., but Canada is expected to forfeit the 30,000,000 K.W. needed to service the project.

¹⁹⁹ See *supra*, note 190, where it is alleged that national income in Canada would be heightened by some \$9 billion annually. *The Summary Report for Canada* places this figure at \$8 billion (i.e. there is no explained reason for this inconsistency) but suggests that ultimately the net value of Canadian production increases would reach \$30 billion annually. See *supra*, note 150, at 41 and 44.

²⁰⁰ See *supra*, note 150, at 7.

²⁰¹ The precise reverse is more apt to be the result, for particularly in the case of larger species, flooding would require territorial readjustments. For many species the sense of territorial sanctity is so compelling that they will perish when displaced.

²⁰² NAWAPA, according to the Parsons Company, also offers Canada the following benefits which deserve quotations in full. It is alleged rather extravagantly that NAWAPA will "raise Canada to the leading position in the Commonwealth, ahead of the United Kingdom" and will "raise Canada to great power status and consequent co-equal sharing of free world leadership with the United States and the European Common Market." See *supra*, note 150, at 45.

²⁰³ *Supra*, note 162, at 38.

²⁰⁴ *Supra*, note 151 at 140.

²⁰⁵ See *Submission to the House of Commons Committee on External Affairs by the Government of Saskatchewan on the Columbia River Treaty*, Regina, Saskatchewan, May 8, 1964.

market demands to be justifiable.²⁰⁶ There are also reports of a power surplus available from Kemano near Kitimat in northern British Columbia which has yet to be used. In addition, there is²⁰⁷ the future potential of the Yukon-Atlin-Taku diversion plan.

Returning to water, the United States for its own part has alternative methods of supplementing the waning supplies of its arid regions. For example, the American southwest can and no doubt will at some point in the future draw from the 180 M.A.F.²⁰⁸ of flow of the Columbia River. This is twice the volume of water that NAWAPA would provide each year.²⁰⁹ Even the power supplies made available in the U.S. by the Parsons plan are less than one-half the amount to be provided by the planned federal development programs which the project would replace.²¹⁰ No such statistics are, as of yet, available with respect to CeNAWP and the GRAND Canal. But it seems likely that while they may represent conceptual milestones in continental resource planning, they are all far from persuasive vis-à-vis the many regional alternatives at hand.

(c) *Ecological Unknowns*

Each of the projects would seem to tentatively risk the odd apocalyptic spillover which deserves brief mention here. Apart from the problem of Great Lake flooding referred to above, there are the additional possibilities of massive lenticular shifting, extensive climatic alteration, and underlying ecological restructurings.

As was noted earlier, much of the project area at issue to all three plans lies in regions noted for their harshness of climate. This is particularly true of the Rocky Mountain Trench region.²¹¹ Characteristically, the subsoil of these regions is permafrost and for this reason in many cases gives a deceptive impression of stability. The reality is frequently that large lenticular masses are merely held in a suspended condition by ice. Reservoirs such as that required by NAWAPA would subject such masses to a greater heat inflow²¹² than normal, which might provoke massive geological restructurings. In short, the Rocky Mountain Trench, as an example, might well prove to be a rather unreliable reservoir.

NAWAPA in particular seems rather carelessly researched in light of the apparent geological dangers. Not only do geological problems arise in relation

²⁰⁶ *Rampart Dam and the Economic Development of Alaska*, Vol. 1, Summary Report, Ann Arbor, University of Michigan, March 1966.

²⁰⁷ For details see *Brief to the Royal Commission on Canada's Economic Prospects* by Northwest Power Industries Ltd., Victoria, B.C., November 1955, and Ventures Ltd., Annual Report, 1953.

²⁰⁸ See *supra*, note 61.

²⁰⁹ NAWAPA would deliver 78 M.A.F. annually to the U.S. See *NAWAPA: North American Water and Power Alliance*, *supra*, note 150, at 9.

²¹⁰ NAWAPA would on the other hand provide twice the water storage for use in the U.S. as was provided in the current federal planning as of 1966. See *Western Water Development*, *supra*, note 167, at 5 and *passim*.

²¹¹ Cf. *Permafrost in Canada*, based on a map prepared by the National Research Council and the Geological Survey of Canada, The Royal Geographic Society, D. Davis, Map No. 1, *Canadian Geographical Journal*.

²¹² *Supra*, note 182, at 19.

to the great weight redistribution that would result from the creation of a trench reservoir,²¹³ but also in relation to the safety of a number of specific damsites. Of particular note are the two projects in the Alaskan fault region; Chitina Dam on the Copper River, 190 miles to the east of Anchorage, and Watana Dam on the Susitna River, 110 miles to the north. The former would be built to a height of 1,700 feet and the latter to a height of 880 feet.²¹⁴ Both lie in an area famous for earthquake activity, and both, because of their enormous size, would be built at the limit of our contemporary technical understandings of dam construction. The risk element from earth tremors would therefore seem to be exceedingly great.

Another factor concerns the vast tracts of Canada's 500,000 odd square miles of muskeg that lie in the path of NAWAPA, CeNAWP, and the GRAND Canal, which would to some extent be affected. It is now evident that in the far north muskeg is the most important water supply controlling agent, and for this reason it is possible that any alternation by way of the creation of new reservoirs or diversions would reap a devastating impact upon the physical and mechanical constitution and physiography of this natural regulator of water supply.²¹⁵

There are yet other climatic influences as a result of these sorts of artificial changes about which considerable evidence has recently come to the fore²¹⁶ which strongly suggests that alterations would be substantial. At issue here is the notion that Canada's northern waters flow "unused" into the sea. This adjective is remiss to the extent that it neglects a process known as "haline circulation" by which fresh water, as it meets salt water, induces an inland transport of the latter. The ratio of this transport of salt to fresh is approximately one hundred to one.²¹⁷ As a natural phenomenon, haline circulation plays a vital role in determining climatic patterns²¹⁸ wherever salt and fresh water mix. It is inescapable that the reduction in flow of fresh water consequent to NAWAPA, CeNAWP, or the GRAND Canal will provoke rather far reaching changes in regional climatic patterns as a necessary concomitant, which will in turn pose a threat to the underlying ecology for huge tracts of the country.

The potential extent of these changes should not be underrated. An American scientist with the U.S. Coastguard, for example, has argued that a reversal of rivers presently entering Hudson Bay would have the immediate effect of lowering the temperature of its waters, which would in turn have the effect of reducing the moderating influence of the Labrador and Baffin currents.

²¹³ The Rocky Mountain Trench reservoir would have a storage capacity of 518,200,000 A.F. This would weigh roughly 1,408,000,000,000 lbs. or 702 billion tons (!)

²¹⁴ E. Roy Tinney, "Engineering Aspects", *Bulletin of the Atomic Scientists*, September 1967, at 22.

²¹⁵ See Norman W. Radforth, *NAWAPA and Muskeg*, *supra*, note 186, at 27, and Trevor Lloyd, *Foreign Affairs*, July 1970, at 731.

²¹⁶ H. A. Neu, "Notes on the Effect of Diversions of Water on the Climate of the Continent", *McNaughton Papers*, and cited *supra*, note 182, at 19.

²¹⁷ Thus for example, measurements conducted at Baie Comeau have shown that an outflow of 330,000 cubic feet per second of fresh water induces an inland transport of roughly 30,000,000 cubic feet per second of salt water.

²¹⁸ See for example, Minutes of Proceedings, *Second International Oceanographic Congress*, Moscow, June 1966.

The subsequent climatic response, it was argued, would be felt as far away as the New England coastal area, if not further.²¹⁹

The influence that the haline circulation process can have upon a region's ecology presents a very serious challenge to the notion that an area's water supplies can ever be without value. It is to the contrary rather evident that Canada has no reserve of excess or surplus water that can be trans-shipped without cost to the exporting region. Any decision to export from one area to another will therefore have to rest upon a prior resolution of competing uses and values as between regions as is true in all cases of resource allocation. In short, the premise relied upon by the proponents of NAWAPA, CeNAWP and the GRAND Canal, that a region derives no benefit from the presence of a natural supply of water, is specious. Indeed it is not necessary to look too far to see the truth of this so far as the Canadian north is concerned. NAWAPA, for example, would deprive some of the richest timber stands and fisheries on the globe of water which forms the very basis of their existence.

In summary, each of the three export proposals suffer from overwhelming geographical, cost, and ecological deficiencies. They are so serious that it is only too easy to dismiss all of the plans as basically impracticable. But in terms of the more general question of water export it is clear that, imperfect as they are, NAWAPA, CeNAWP, and the GRAND Canal have raised a significant issue in terms of one of the compromises that may be expected of Canadian sovereignty as the price of possessing the northern perimeter of the world's most highly industrialized and resource-consuming power.

(d) *The Legalities of Water Export*

The implications of a large-scale water export in terms of the possible erosion of Canadian sovereign control is the subject of some controversy. In this connection one author has argued that:

"... the negative argument [against water export] . . . presupposes the inability of Canadian negotiators to conclude a treaty which maximizes Canada's interests in the sale of her resources. It is submitted that this inferiority complex is unwarranted."²²⁰

On the other hand to the extent that past precedent should be the guide it is perhaps a stronger argument that recent developments of trans-boundary water law supply a rather firm basis for pessimism vis-à-vis any Canadian participation in negotiations of this kind. First, the lengthy history of inconsistent application of the purportedly grounding precepts of international law in the area (re discussion in sections III, IV, and V) would make it necessary for the negotiation of an agreement certain within its own terms and totally independent of presently unreliable precedents of the existing law in force between the two countries. Second, in terms of the two major treaties concluded in this area, the *Boundary Waters Treaty* of 1909 and the *Columbia River Treaty*, Canada emerged very much the poorer for her involvement as has been shown above. There does not appear to be much in the way of at least treaty precedent that commends itself to the suggestion that Canada "can do better next time."

²¹⁹ R.C. Kollmeyer, *ibid.*

²²⁰ Richard Dixon, *Constitutional Aspects of Water Export*, Agassiz Center for Water Studies, The University of Manitoba. The insertions are my own.

It has, however, been argued that water export is not the critical, all-or-nothing issue that has been thus far assumed by this paper. Professor E. Kuiper, for example, suggests that:

"... it is likely that the United States and Mexico will discover that it is more economical to desalinize seawater at selected points along their own coastline, and pump it to the areas where it is needed. Thus, the treaty of water will be terminated, not by Canada because it needs its own water, but by our neighbours, because the price becomes too high."²²¹

Once more there is enough uncertainty with respect to this argument that it remains less than persuasive. First, the development of low-cost desalinization techniques will be to a large extent the concomitant of need. Once the demands for additional water are satisfied by way of an export from Canada it may prove that the incentive to devote otherwise productive sums to methods of converting salt water to fresh will disappear.²²² Second, while it is conceivable that on coastlines it may be possible to desalinize at a cost which is competitive with the impounding of fresh water, trans-shipment expenses will certainly remain the crucial factor in terms of deciding upon desalinated seawater or new fresh water sources. It is doubtful that desalinization plants on the pacific coast could compete with interior water diversions in terms of market needs east of the Rockies. The cost of pumping sea water over the divide would simply be too great, and for at least arid areas of the continent's interior, a fresh water system such as CeNAWP would no doubt be a more optimal conduit. Thus, for all of these reasons, to say that the possibility of the future innovation of diversion substitutes as a means of obtaining more water should allay Canadian fears concerning an irrevocable commitment is a dangerous over-simplification.

In this regard it should be noticed that the United States does not see the import question as anything but a permanent arrangement. As Senator Moss, for example, noted before the Royal Society of Canada at its 1966 meeting in Sherbrooke, Quebec, Canada could not manage such an arrangement on a "... turn-off turn-on basis".²²³

In view of these factors, at the present moment the possibility of a future water export treaty with the U.S. holds many risks for Canada as respects practical economic considerations, environmental problems, and uncertain legal precedents which have obscured the extent to which national sovereignty could be preserved. While resolution of the first two aspects is beyond the scope of this paper, it is suggested that much can be done to resolve the ambiguity subsisting in the presently developed law.

VIII

THE NEED FOR CERTAINTY: TWO CLARIFYING PRECEDENTS

Two main features can be said to characterize trans-boundary water law and the Canadian position with respect thereto: first, it has evolved a number of

²²¹ E. Kuiper, *Canadian Water Export*, as cited at p. 9, *ibid*.

²²² Unless of course it can be argued that the mere possibility of Canada repatriating her water is a sufficient incentive. It will be suggested *infra* that it is not.

²²³ "U.S. Senator Pleads for NAWAPA Study", *Reclamation*, September 1966.

serious ambiguities which are demanding of clarification, and second, international water use questions are approaching a crisis point as a consequence of what appears to be a growing demand for more water in the United States.

At the present time Canada is a house divided as respects the issue of whether water should be considered just another exportable natural resource or something more. Not only has this lack of resolve been evident in public policy statements of federal politicians;²²⁴ it is also implicit from the uncertainties that have begun to fetter trans-boundary riparian relations and the lack of policy with respect to the assertion of jurisdiction over trans-boundary waters originating within Canada. The United States has not proven to be so inattentive. Canada has had to confront a series of skilled American negotiators that have consistently pressed their nation's best interests. They have proven successful in preserving all of the benefits that flow from their own sovereignty (re: the Sage Creek, Waneta Dam, Waterton and Belly, and Souris references), have none-the-less managed to simultaneously extract enormous concessions from Canada (re: the Columbia-Kootenay development), and are apt to advance upon their record of past success with the negotiation of the impending water export issue. Canada, instead of resisting this apparent depreciation of domestic sovereignty, appears to be more apt to institutionalize it by way of conceding international legal recognition of the two doctrines of international law, (i.e. the doctrines of *prior appropriation* and *equitable apportionment*) which most depart from the strict sovereignty theory of the *Boundary Waters Treaty*, and readily entering into the debate as to whether they refer to merely trans-boundary issues or Canadian water resources in toto.

At the present moment, increasing public attention is being focused upon possible sovereignty difficulties arising from large concentrations of foreign ownership in certain Canadian industrial sectors. It is something of a paradox that a protective policy should develop concerning foreign ownership of developed enterprise and at the same time nothing be done with respect to the protection of one of the basic assets upon which so much industry and virtually all settlement so crucially depends. It is submitted that this situation should be rectified. In particular, it is suggested that:

- (1) The *doctrine of prior appropriation* should be rejected. Its effect is to extinguish pre-existing rights of title and is therefore inconsistent with the preservation of sovereignty vis-à-vis waters lying within Canada;
- (2) The *doctrine of equitable apportionment* should be rejected. Its effect is to deny full rights of title and to subordinate the same to interests outside of the jurisdiction. It therefore is also inconsistent with the preservation of sovereign control over the domestic resource base;
- (3) *Article II* of the *Boundary Waters Treaty* should be refurbished as the guiding principle of the international law. It preserves and re-maximizes domestic sovereignty, maximizes negotiation strength, and is the most certain and unequivocal starting point for international co-operation.

²²⁴ For example, federal Energy, Mines and Resources Minister J.J. Greene, was quoted as having said that Canadian water was not for sale, while almost at the same moment Prime Minister Trudeau was busy asking a national television audience, "... why shouldn't we sell our water resources for good cold hard cash?" Cf. *supra* note 181.

A reinstatement of *Article II* would be of enormous benefit to Canada in several respects. First, it would solve the problem of reasserting the rights of unrestricted title over the Columbia River storage projects in Canada, as well as the right to make upstream use of the Kootenay, upon expiration of the *Columbia River Treaty*. As was considered in Section IV, ambiguities within the actual agreement and the pre-existing I.J.C. precedents make Canada's claims in this regard tenuous, whereas if *Article II* were to be continued as the operative law they would be more certain. Second, clarification of the status of this provision as was suggested above would have the additional effect of establishing that the Canadian right to make consumptive divisions over the life of the treaty as provided for under Article XIII²²⁵ and quoted above, is not subject to equal "as of right" claims in relation to downstream withdrawals of this nature, but is instead a prior and superseding right accruing to the exclusive Canadian status as the upstream riparian.

Third, *Article II*, as the prevailing principle of law maximizes Canadian advantage with respect to other major undeveloped trans-boundary water resources of the continent apart from the Columbia and Kootenay. Most of these lie in Western Canada and, most importantly, most also flow in a north-south direction. This, however, is not to suggest that this should be viewed as license to injure downstream dependencies in the U.S. But it is nevertheless important that Canada re-assert sovereignty over these waters if only to ensure that present and future co-operative ventures do not fetter domestic control over this part of the nation's resource base in perpetuity.

Within this same context, the fourth advantage to a reassertion of the second article of the *Boundary Waters Treaty* is the complete routing of the notion of a "continental water resource heritage". Canada would by claiming the maximum rights of sovereignty possible within trans-boundary riparian law, obtain the strongest possible base from which to deal with the issue of water export, and in the event that such a treaty was struck, could minimize the long-term risks arising therefrom vis-à-vis the retention of domestic sovereignty.

At the time of writing, two separate trans-boundary issues have arisen which are well suited as vehicles for the reassertion of *Article II* by Canada: these are the proposed Shuswap-Okanagan diversion and the Skagit Valley dispute. Each has been separately discussed below.

(a) *The Shuswap-Okanagan Diversion*

The Shuswap River lies wholly within Canada. Its source waters lie a few short miles to the west of the Columbia River near the town of Revelstoke and flow in a zig-zag pattern through Shuswap Lake to meet with the South Thompson and ultimately the Fraser River.

The Okanagan River is, on the other hand, international. Originating in Lake Okanagan in Canada its waters flow to the south to eventually connect with the mainstem Columbia near the town of Brewster in the State of Washington.

²²⁵ Cf. *supra*, note 94.

The Canadian Okanagan region is semi-arid, being one of the driest areas of the country. It has experienced in the past rather severe drought conditions which have had detrimental effects upon the area's agricultural output. While there is some controversy as to whether the water shortage is the result of control and storage difficulties or an actual shortage of run-off,²²⁶ there has been rather strong support for a water import from areas to the north where water is more plentiful. In particular, it has been suggested that a portion of the Shuswap flow might be redirected into the Okanagan system to supplement existing supplies in the latter region.²²⁷

From the point where the Okanagan and Columbia Rivers join to the mouth of the latter, all but some seventy-seven feet of Columbia head have been developed for hydroelectric power generation. Should the Shuswap-Okanagan integration occur, it has been argued that a net international flow increase would prove inevitable.²²⁸ It would more importantly confer a perceptible gain for U.S. power producers and furthermore could be attributed to the Fraser (of which the Shuswap-Thompson system is a part) rather than the Columbia basin.

The fact that waters from the Fraser basin are to be introduced into an international system carries with it a number of risks. First, it provides a basis for a U.S. claim under the *doctrine of prior appropriation* over that proportion of the diverted Shuswap flow which has had a perceptible impact upon the rate of flow of the Okanagan at the forty-ninth parallel. This may bar Canada from reapplying the diverted waters to uses outside the Okanagan and in practical effect make the Shuswap-Okanagan integration a permanent arrangement. Second, if this proves to actually be the case it will represent a rather crucial precedent in terms of the legal relations between the two countries for it will earmark the growth of the application of international law from trans-boundary waters (as defined by *Article IV* of the *Boundary Waters Treaty*) to include a wholly national basin. The extent of this jurisdictional inroad is a debatable point but two issues are indisputable; namely, notionally it will be of significance, and will represent a fettering of Canadian sovereign jurisdiction to some limited degree.

It is suggested that given the above possibilities it is not advisable to make use of Fraser basin waters as a means of augmenting Okanagan supplies. A better source would be the mainstem Columbia.²²⁹ In the first place this would prevent the involvement of waters other than those originating from trans-boundary rivers. Second, and more importantly, it would make it possible to

²²⁶ Historically, storage regulation on Lake Okanagan has been rather limited and has suffered from the inability to accurately predict inflows during the spring run-off. There is thus an important waste factor which aggravates the water problem.

²²⁷ A minimum diversion of 285,000 acre feet has been recommended to meet Okanagan water demands to the year 2000. A.R.D.A. (Research) Project No. 10031 reports August 1966 and May 1967.

²²⁸ I.A. McDougall, "Report on the Proposed Fraser-Columbia Water Transfer: Some Economic and Legal Implications for the Upstream Riparians," *Osgoode Hall Law Journal*, Vol. 8, November 1970, No. 2, at 309-311. The essentials of the argument below have been detailed at length in this article.

²²⁹ By way of an Eagle Pass diversion into the Shuswap headwaters as was considered in the 1956 B.C. Engineering Company Report concerning the then proposed Columbia-Fraser diversion.

clarify Canada's consumptive title which the Columbia River Treaty appears to have obscured, and coincidentally permit the reassertion of *Article II*.

The mechanics of this proposal are not complicated. Columbia waters presently controlled in Canada flow only to the United States where they are used "as of right" for the generation of hydroelectric power. But under the Treaty, as noted above, Canada can, notwithstanding the U.S. power producers' need for storage, make consumptive diversions. But as also noted, it is not clear whether Canada as upstream owner has any greater claim upon the Columbia waters for this purpose than does the U.S. If *Article XIII* and *Article II* of the *Boundary Waters Treaty* are to be read conjunctively, it can be argued that the Canadian right is a paramount one, but as has been shown above, *Article II*'s status is presently in some doubt.

Water diverted from the Columbia into the Shuswap can flow in one of two directions; namely, it can flow through the Thompson and Fraser to the Pacific, or it can be diverted back into the Columbia basin via the Okanagan. Having in mind this option it is suggested that an amount deliberately in excess of the Okanagan's projected needs be withdrawn from the Columbia under *Article XIII* and redirected through the Okanagan conditionally upon the reservation by Canada that its options with respect to future consumptive uses will be preserved notwithstanding any consumptive uses downstream in the United States. This is in effect *Article II*, but expanded so as to include consumptive rights of upstream riparians. Such a reservation would be tantamount to a reinstatement of its application internationally as well as a welcome (i.e. from the Canadian point of view) clarification of *Article XIII* of the *Columbia River Treaty*. It would also estop claims under the *doctrine of prior appropriation* if and when the waters diverted into the Okanagan were redirected to the Thompson and Fraser or elsewhere.

(b) *The Skagit Valley Dispute*

The Skagit River rises in the Province of British Columbia to the west of the Cascade Mountains, and flows southwards for some 28 miles before it crosses the international boundary. From here it continues to flow through the State of Washington for a further 135 miles to ultimately discharge into the Pacific Ocean through the Strait of Juan de Fuca. At a point approximately 30 miles downstream from the international frontier, the City of Seattle constructed the Ross Dam for the purpose of providing hydroelectric power for the needs of that city. On August 6, 1941 Seattle applied to the International Joint Commission for authorization to raise the natural water level of the Skagit River by some 130 feet to an altitude of 1725 feet above sea level at the boundary, thereby inundating 5475 acres more or less in the Province of British Columbia. I.J.C. approval was given²³⁰ subject to two conditions.²³¹ First, that Seattle adequately compensate the Province and any Canadian private interests adversely affected, and that the level of Ross Dam not be raised until a binding agreement be struck between the City and the Province and any private inter-

²³⁰ Approval was given on January 27, 1942.

²³¹ See Order of Approval, at 3-4.

ests providing for said indemnification. The second condition, because of its bearing upon the discussion to follow has been set out in full:

"The Commission expressly reserves its powers under the [Boundary Waters] Treaty further to exercise jurisdiction over effects on the natural water levels at and above the international boundary, and to amend this order or issue additional orders for the protection and indemnification of the Province of British Columbia, or any affected private interest in Canada, that may be found by the Commission to have sustained damage by reason of any violation of the terms of this order; provided, that any such further order shall be issued only after the Commission shall have received and considered a formal application filed by the aggrieved party in accordance with the Commission's Rules of Procedure, and after due notice has been given and an opportunity of hearing afforded to all interested parties in the United States and Canada."²³²

An agreement was concluded between the province and the city of Seattle on January 10, 1967²³³ wherein the latter obtained permission to flood the required 6,300 Canadian acres for a period of 99 years from the date of execution in exchange for consideration of an annual rental of \$34,566.21 or an equivalent value in electrical energy at the option of the province.²³⁴ This arrangement has been subjected to some understandable criticism. The propriety of an annual rental fee of \$5.50 per acre of Canadian soil has been challenged, and the negotiation called an "economic disaster".²³⁵ A Vancouver-based ecology group²³⁶ has also been outspoken in its attempts to prevent the flooding. They make note of the fact that the region has rather great value as one of the few wilderness recreation areas accessible to Lower Mainland residents, as well as for the reason of being a natural sanctuary for a variety of wildlife.²³⁷ Confronted with this mounting opposition, the British Columbia government's Resources Minister has been quoted as saying:

"If the federal government can get it stopped, fine and dandy. We're saying more power to you; go to it. But it's your action; don't call yourselves our agents."²³⁸

In light of the fact that the next most economical power source would cost Seattle an additional \$1,000,000 per annum,²³⁹ the British Columbia refusal to accept responsibility for a repudiation of the agreement is perhaps the only sensible course left open to it.

Repudiation of the agreement, however, may be possible at the federal level in two ways. First, the third section of the *International Rivers Improvements Act*²⁴⁰ provides that:

"The Governor in Council may, for the purpose of developing and utilizing the water resources of Canada in the national interest, make regulations (a) respecting the construction, operation and maintenance of international river improvements; (b) respecting the issue, cancellation and suspension of licences for the construction,

²³² *Ibid.*, at 4.

²³³ I.J.C. file copy.

²³⁴ *Ibid.*, at 3-4.

²³⁵ *Toronto Star*, February 20, 1971, at 17, "A Bubbling Stream Causes Canada-U.S. Ecology Row".

²³⁶ S.P.E.C. or the Society for the Protection of Environmental Conservation.

²³⁷ This includes a variety of fish breeds, deer and small mammals, and over 40 species of birds.

²³⁸ *Supra*, note 235.

²³⁹ *Ibid.*

²⁴⁰ *International River Improvements Act and Regulations*, S.C. 1955, c. 47 and S.O.R. 1956, number 9 (P.C. 1955-1899).

operation and maintenance of international river improvements; (c) prescribing fees for licences issued under this Act; and (d) excepting any international river improvements from the operation of this Act."²⁴¹

and Section four further provides that:

"No person shall construct, operate or maintain an international river improvement unless he holds a valid licence therefor issued under this Act."²⁴²

Because the proposed expansion of Ross Dam described in the British Columbia-Seattle Agreement involves both an "increase, decrease, or [alteration of] the natural flow of an international river"²⁴³ and an interference "with . . . the actual or potential use of [an] international river outside Canada", it would seem therefore to be within the charge of the Act. This being so the agreement would seem further subject to federal alteration under the authority of section three. Under such circumstances can it be said that the provincial-Seattle agreement is at law "binding"? If not, it would seem that the original terms of the I.J.C.'s order of approval have not been met.

In addition, it can be argued that the validity of the agreement is jeopardized by the sixth and seventh paragraphs of Article VIII of the *Boundary Waters Treaty*. Paragraph six provides that:

"The Commission in its discretion may make its approval in any case conditional upon the construction of remedial or protective works to compensate so far as possible for the particular use or diversion proposed, and in such cases may require that suitable and adequate provision, approved by the Commission, be made for the protection and indemnity against injury of any interests on either side of the boundary."²⁴⁴

Paragraph seven sets out the Commission's jurisdiction in reference to the particular case of changes in natural water level elevations:

"In cases involving the elevation of the natural level of waters on either side of the line as a result of the construction or maintenance on the other side of remedial or protective works or dams or other obstructions in boundary waters or in waters flowing therefrom or in waters below the boundary in rivers flowing across the boundary, the Commission shall require, as a condition of its approval thereof, that suitable and adequate provision, approved by it, be made for the protection and indemnity of all interests on the other side of the line which may be injured thereby."²⁴⁵

This last paragraph, coupled with the fact of the original I.J.C. order of approval being subject to the condition that British Columbia and any concerned Canadian private interests be adequately compensated, would appear to *prima facie* leave room to argue that the B.C.-Seattle agreement can be repudiated by Canada for the I.J.C. has received, noted and filed the agreement, but has not "approved" it per Article VIII.²⁴⁶

While it is suggested that the federal government or the I.J.C. should repudiate this apparently bad settlement, it is not contended that the Ross Lake backflooding should be prohibited. As was the case with the Shuswap-

²⁴¹ S. 3, *ibid.*

²⁴² S. 4, *ibid.*

²⁴³ S. 2, *ibid.*

²⁴⁴ Paragraph 6, Article VIII, *supra*, note 1.

²⁴⁵ Paragraph 7, Article VIII, *ibid.*

²⁴⁶ *Supra*, note 248.

Okanagan integration, the Skagit Valley controversy provides yet another avenue through which Canada can attempt to re-assert the status of *Article II* as still valid international law. Once more it is argued that the value of this far outweighs the ecological damages Canada may suffer as a consequence of the increase in elevation of floodwaters backed up into Canada. In particular, it is suggested that approval be given to Seattle subject to a reservation couched in similar terms to that contained in the earlier Waneta order referred to above.²⁴⁷ Such a reservation might therefore read as below:

"Issuance of the order of approval should not be construed as waiving or otherwise impairing in any degree the right of Canada recognized in Article II of the Boundary Waters Treaty, to construct, maintain, and operate such works as it may consider necessary or desirable for the purpose of making the most advantageous use practicable on its own side of the international boundary by diversion for any purpose the waters of the Skagit River as it may be regulated by headwater storage reservoirs lying entirely within Canada and constructed wholly at the expense of Canada, or the expense of Canadian interests."

IX

SUMMARY AND CONCLUSIONS

This paper began with a summary of the International Joint Commission and the concluding of the *Boundary Waters Treaty* in 1909. It was noted that originally Canada had not been entirely pleased with this agreement; most particularly its second article. Through a tracing of five trans-boundary references to the Commission it was shown that the status of this provision had grown increasingly obscured until when finally the *Columbia River Treaty* represented a first formally acknowledged departure from it. It was argued that the situation subsisting as of this time was an ambiguity between three competing principles of trans-boundary water resource development; namely, *Article II* or the strict sovereignty theory, the *doctrine of prior appropriation*, and the *doctrine of equitable apportionment*. It was also suggested that as of 1961 it was now within Canada's interests to strictly adhere to the original law and formally reject the latter two principles, as recognition of either would be inconsistent with the preservation of full rights of national sovereignty over resources of domestic origin. In this connection, attention was drawn to three major water export schemes which can be seen as the logical extension of the continental development theory implicit to prior appropriation and equitable apportionment. Note was made of a number of economic, ecological, and legal problems inherent to the schemes which must be solved, and it was strongly contended in conclusion that an export not be permitted or considered in the interim.

Having in mind these developments it was argued that two current trans-boundary water problems should be used as devices through which Canada might re-establish the original law. In the case of the Shuswap-Okanagan controversy it was recommended that Canada assert the rights given under *Article II* with an eye towards first, preserving jurisdiction over the Canadian

²⁴⁷ See *supra*, p. 276, *supra*, note 5.

Columbia storages by means of limiting the effect of the Columbia agreement to power considerations, and second, re-establishing the Canadian right to make pre-emptory diversions from the Columbia and Kootenay for consumptive purposes during the life of the Treaty, and for any purpose upon its expiry. The Shuswap-Okanagan diversion, in other words, could prove to be a valuable vehicle for clarification of the *Columbia River Treaty* and for the rejection of the competing doctrines which have grown to rival the original precepts as set out first in 1909.

In the case of the Skagit Valley controversy it was suggested that employment of a reservation of *Article II's* rights with respect to the I.J.C. order of approval could be yet another means through which Canada could contend that it considers *Article II* to be the prevailing definition of national right with respect to trans-boundary water resources.

Both precedents, it is argued, would well serve the national interest insofar as they would clarify otherwise obscured law so as to preserve the benefits of sovereignty and decapitate the current argument of the proponents of water export that legal recognition has been accorded the notion of a "continental resource pool".

