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By 1944, the Columbia River had been developed to nearly its maximum potential by the United States. However, the Columbia River basin extends 270 miles into British Columbia, most of which is entirely undeveloped. This situation created a need for international cooperation for future development, and after twenty years of negotiation between the United States and Canada, the Columbia River Treaty was signed in 1964. In this well documented article, Professor Utton examines the Treaty, its potential, its pitfalls and future meaning to the United States.

THE COLUMBIA RIVER TREATY AND PROTOCOL†

*Albert E. Utton**

BACKGROUND TO COLUMBIA RIVER TREATY

THE Columbia River is the second largest river in the United States and the fourth largest on the North American Continent. Only the Mississippi, MacKenzie and St. Lawrence Rivers are larger. The drainage basin of the Columbia is larger than France,[1] covering 259,000 square miles, fifteen per cent of which lies in British Columbia and comprises eleven per cent of the land area of that province. The basin extends 270 miles north of the border into British Columbia and 550 miles south of the boundary into the states of Washington, Oregon, Idaho, Montana, Wyoming, Utah and Nevada. From its source to the ocean, the Columbia descends 2,655 feet and discharges four times as much water

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1. The area of France including Corsica is 212,659 square miles. The Columbia Lippincott Gazetter of the World 635 (Seltzer ed. 1962).

as the Tennessee River.[2] The potential benefits to be derived from this great drainage basin sitting astride the international boundary are of great magnitude. This is particularly true of hydroelectric power. Total flow and fall make it one of the best rivers in the world for power generation.[3] However, the peak periods for power demand and stream runoff are almost diametrically at odds: the peak runoff occurs at the height of the snow melt in May, June, and July while the low flow usually occurs during the cold months of January and February; consequently, the seasonal fluctuation in stream flow can vary as much as forty to one.[4] In contrast, the peak power demands occur during the cold months. Thus "the flows of the Columbia are directly out of phase with the requirements for energy delivery."[5] Therefore storage of peak runoff waters for use during peak power demand periods is of paramount importance. This storage is not only necessary in order to realize the power potential of the Columbia, but also to control the destructive floods that occur if the peak flow is not controlled.[6]

By 1944 the United States had very nearly developed the maximum potential of the Columbia on the American side, whereas the Canadian side was almost undeveloped.[7] Further development dictated the desirability of international cooperation, and on March 9, 1944, the governments of Cana-

2. KRUTILLA, THE COLUMBIA RIVER TREATY: AN INTERNATIONAL EVALUATION, 2-5 (Resources for the Future, Inc., Reprint 42, 1963); INTERNATIONAL COLUMBIA RIVER ENGINEERING BOARD, REPORT TO THE INTERNATIONAL JOINT COMMISSION ON THE WATER RESOURCES OF THE COLUMBIA RIVER BASIN (1959), abstracted in CAN. DEP'TS EXTERNAL AFFAIRS AND NORTHERN AFFAIRS & NATIONAL RESOURCES, THE COLUMBIA RIVER TREATY, PROTOCOL AND RELATED DOCUMENTS 20 (1964) [hereinafter cited as TREATY, PROTOCOL AND RELATED DOCUMENTS].

3. *Id.* at 5.

4. Press release by Prime Minister Diefenbaker, Jan. 17, 1961 reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 84.

5. KRUTILLA, *op. cit. supra* note 2, at 42.

6. In the flood of June 1894, the largest known, the flow reached 1,240,000 cfs. at the Dalles. This large flow was caused by the combination of above normal snow pack accumulating during the winter and rapid melting in the spring. Such a flow today would cause enormous damage because of the economic development that has taken place in the Basin. TREATY, PROTOCOL AND RELATED DOCUMENTS 23, 25.

7. Austin, *Canadian-United States Practice and Theory Respecting the International Law of International Rivers: A Study of the History and Influence of the Harmon Doctrine*, 37 CAN. B. REV. 434-35 (1959); also see the report of the International Columbia River Engineering Board which states that of 43 billion kilowatt hours of electric energy that were produced within the Basin during the period July 1956 through June 1957 only 2.7

da and the United States asked the International Joint Commission to "determine whether a greater use than is now being made of the waters of the Columbia River would be feasible and advantageous."[8] A controversy then developed between the two countries over how the costs and benefits of the development of the waters of the Columbia should be shared. Canada contended that if Canadian land was used for storage then Canada should be entitled to downstream benefits in the form of power, but the United States resisted this position. Illustrative of this conflict are the negotiations over the Libby Dam. The United States proposed to build the Libby on the Kootenai (Kootenay)[9] River south of the boundary. Water would then be backed up into Canada, flooding 15,000 acres of land. The Canadians contended they were entitled to downstream benefits for the use of Canadian land. The United States refused to discuss compensation beyond the value of the land and the costs for clearing the land and relocating roads, railroads and people. However, two proposals—one regarding the Fraser River and the other the Peace River—helped settle the question of entitlement to downstream benefits. Canada, being an upper riparian, was in a position to divert a substantial portion of the waters of the Columbia for exclusive Canadian use if her demands for downstream benefits were not met. General A. G. K. McNaughten, Canadian Chairman of the Canadian Section of the International Joint Commission, made just such a proposal.[10] It was proposed to divert the waters of the Kootenay first into the Columbia and then into the Fraser, an all Canadian River, thereby bypassing most of the Columbia.[11] This

billion kilowatt hours of electric energy were produced in Canada, abstracted in TREATY, PROTOCOL AND RELATED DOCUMENTS 23-24. By 1963 the United States had either developed or had under construction facilities to make use of 1,211 feet of the 1,288 feet of drop on the United States reach of the Columbia, whereas there was no development on the mainstem of the Canadian reach of the Columbia, and only two facilities on tributaries—one at Corra Linn below Kootenay Lake and the other at Waneta on the Lower Pend Oreille. KRUTILLA, *op. cit. supra* note 2, at 6.

8. Reference from the Canadian and United States Governments to the International Joint Commission; Canada's note is reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 17.
9. The American spelling is "Kootenai." The Canadian spelling is "Kootenay."
10. See Senator Neuberger's testimony, *Hearings on Columbia River Development Before Senate Committee on Foreign Relations*, 84th Cong., 2d Sess. 13-25 (1956).
11. See generally, Austin, *supra* note 7, at 436.

threat to the international development of the Columbia was an alarming prospect and a spur to an agreement establishing joint and amicable use of the waters of the great river.[12] The British Columbia proposal to develop the Peace River was also a prod to action. If the Peace River were developed, Canada might have lost interest in developing the Columbia.[13]

The negotiating climate was thus changed so that the two governments could take the first major preparatory step to agreement by requesting the IJC in January 1959 to make a special report recommending how the benefits arising from cooperative development should be calculated and how they should be apportioned. By the 29th of December 1959, the Commission reported back with the principles that it recommended to be followed.[14]

After prolonged negotiation[15] the Columbia River Treaty was concluded and signed by the United States and Canada in Washington, D.C., on January 17, 1961.[16] However, the Province of British Columbia objected to some provisions of the treaty.[17] In order to obtain the requisite approval of British Columbia[18] the Canadian Government, in July, 1963, acquiesced to British Columbian demands in an agreement with the

12. Deputy Assistant Secretary of State Ivan B. White in a statement before the Senate Foreign Relations Committee said, "one of the most important objectives of the U.S. delegation was to remove the possibility, no matter how remote, that Canada, in the absence of an agreement for the cooperative development of the Columbia River, might decide to divert the waters of the Columbia River into the Fraser River Basin which empties into the sea at Vancouver." *Hearing on Columbia River Treaty Before the Senate Committee on Foreign Relations*, 87th Cong., 1st Sess. 45-46 (1961). Also, see testimony given by Senator Lausche. *Id.* at 36-37.
13. See BRITISH COLUMBIA ENERGY BOARD, REPORT ON THE COLUMBIA AND PEACE POWER PROJECTS (1961); Sewell, *The Columbia River Treaty and Protocol Agreement*, 4 NATURAL RESOURCES J. 309, 315. (1964).
14. INTERNATIONAL JOINT COMMISSION, REPORT ON PRINCIPLES FOR DETERMINING AND APPORTIONING BENEFITS FROM COOPERATIVE USE OF STORAGE WATERS AND ELECTRICAL INTERCONNECTION WITHIN THE COLUMBIA RIVER SYSTEM, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 39.
15. For a discussion of the negotiations see MARTIN, CANADA-UNITED STATES TREATY RELATIONS 56-51 (Deener ed. 1963).
16. 44 DEP'T STATE BULL. 227 (1961).
17. For a discussion of the positions of the governments of Canada and British Columbia see Sewell, *supra* note 13, at 319.
18. The court in the Matter of the Weekly Rest Act, [1937] A.C. 326, 354 (P.C. 1936) (Ont.) stated: "[T]he legislative powers remain distributed, and if in the exercise of her new functions derived from her new international status Canada incurs obligations they must, so far as legislation be concerned, when they deal with Provincial classes of subjects, be dealt with by the totality of powers, in other words by co-operation between the Dominion and the Provinces." Cooperation between Canada and British Columbia was required to develop the Columbia since under the British

Government of British Columbia.[19] The Canadian Government then resumed negotiations with the United States concerning changes to the treaty. Final ratification was delayed until after "certain clarifications and adjustments"[20] to the treaty were agreed upon in the Protocol of January 22, 1964. The pause that was taken before the final imprimatur was given to the agreement reflects the enormity of its significance.

LEGAL RIGHTS AND OBLIGATIONS UNDER THE TREATY

The treaty is concerned primarily with two interdependent facets of the development of the Columbia River Basin—flood control and power development.[21] Since the peak run-off period is almost diametrically out of phase with the peak power demand period, storage is essential for both flood control and power development.[22]

Flood Control

Seventeen and three-tenths million acre-feet of storage is required to control a flood of the same magnitude as that of 1894, the largest of record.[23] This amount of storage would control the Columbia so that the peak flow at the Dalles, Oregon, would not exceed 800,000 cubic feet per second,[24] and is the primary goal established by the United States Corps of Engineers.[25] An additional goal was also established that could control the flow by limiting it to a maximum of 600,000 cubic feet per second at the Dalles. This additional goal would require a total of approximately 32 million acre-feet of storage. At the time of the signing of the treaty there was under

North America Act of 1867 the provinces own all resources within their boundaries, and the federal government has jurisdiction over navigable streams, inter-provincial waters, international rivers and treaty-making. British North America Act, 1867, 30 & 31 Vict. 107, c. 3, §§ 92(10), (13), (16); 91(10), (12), (29); and 132.

19. Reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS, 100.
20. Joint communique of President Kennedy and Prime Minister Pearson of May 11, 1963, 48 DEP'T STATE BULL. 815, 816 (1963).
21. The Treaty and its Protocol are highly technical documents, and a reading of the instruments themselves is recommended.
22. KRUTILLA, *op. cit. supra* note 2, at 4-5.
23. *Hearings on Columbia River Treaty, supra* note 12, at 53. For a discussion of how this figure was reached see TREATY, PROTOCOL AND RELATED DOCUMENTS 143.
24. *Ibid.* The Dalles is on the main stem of the Columbia below the mouth of the Deschutes River.
25. REPORT ON WATER RESOURCES DEVELOPMENT IN THE COLUMBIA RIVER BASIN. (1958).

construction or extant about 10.8 million acre-feet of storage usable for flood control so that about 6.5 million acre-feet of storage were required to meet the primary goal and 21 million more were required for the additional goal.[26] The treaty requires that Canada is to provide 15.5 million acre-feet of storage.[27] Of this amount 8,450,000 acre-feet of storage are to be provided for flood control for sixty years from the date of ratification.[28] In addition to the 8,450,000 acre-feet the treaty provides that Canada will operate any additional storage within the limits of existing facilities,[29] if after all United States facilities are used it is still not possible to control the flow at the Dalles to 600,000 cfs.[30] The additional storage over and above the 8,450,000 acre-feet will make it possible to control the flow of a flood of 1894 proportions to 720,000 cfs.[31] After the expiration of the sixty year period for so long "as the flows in the Columbia River in Canada continue to contribute to potential flood hazard in the United States" the United States can call on Canada for help in controlling floods, when United States storage facilities cannot reduce the flow to 600,000 cfs at the Dalles.[32]

Thus the objective standard of a flow exceeding 600,000 cfs at the Dalles after all the United States facilities have been used is provided to determine when Canada can be called upon to provide flood control storage in addition to the 8,450,000 acre-feet during the first sixty years of the treaty, and the same standard is to be applied before Canada supplies *any* flood control storage after the sixty years expire. However, if the Canadian operating entity rejects or modifies a call made by the United States' entity for flood control

26. There were actually 13 million acre-feet of storage but only about two-thirds of it was available for flood control, see note 45 *infra* and KRUTILLA, *op. cit. supra* note 2, at 8.
27. Of this amount 7,000,000 shall be located near Mica Creek on the Columbia, 7,100,000 acre-feet near the outlet of Arrow Lakes and 1,400,000 on the Kootenay River near Duncan Lake. Treaty With Canada on Development of Columbia River Basin, Jan. 17, 1961, art. II, [1964] ____ U.S.T. & O.I.A. ____, T.I.A.S. No. 5638 (effective Sept. 16, 1964) [hereinafter cited as Columbia River Treaty].
28. Columbia River Treaty art. IV.
29. Columbia River Treaty art. IV(2)b.
30. Unless agreed otherwise by the Permanent Engineering Board. Para. 1(1) of the Protocol, reproduced in 50 DEP'T STATE BULL. 202 (1964).
31. 44 DEP'T STATE BULL. 230 (1961).
32. Columbia River Treaty Article IV(3); Para. 1(2) of the Protocol, reproduced in 50 DEP'T STATE BULL. 202 (1964) and in TREATY, PROTOCOL AND RELATED DOCUMENTS 110.

in either of these two situations, and the two entities are unable to reach agreement, the request is submitted to the Permanent Engineering Board for a final and binding decision.[33] The establishment of this 600,000 cfs standard and appellate function for the Board was provided for in the Protocol to satisfy Canadian concern that she had no voice in determining whether a need for additional flood control actually existed. Canada was also concerned that because of the development of potential flood areas, calls for flood control storage might become so frequent that they would interfere with Canadian use of the storage, especially for power generation.[34] The set standard puts an objective unit on when calls can be made regardless of intervening building and development. The treaty provides that the United States is to pay a total of $64 million in United States funds for the 8,450,000 acre-feet of storage.[35] This amount is broken down to:

1) $1.2 million to be paid upon the commencement of operation of the Mica Creek Storage;

2) $52.1 million upon the beginning of operation of the Arrow Lakes Storage; and

3) $11.1 million upon the commencement of operation of Kootenay River Storage.

These figures are computed on the basis that Canada is entitled to a return of one-half of the estimated damage that

33. Para. 1(3) of the Protocol, reproduced in 50 DEP'T STATE BULL. 202 (1964). The actual language is as follows: "the entities will be guided by any instructions issued by the Permanent Engineering Board." *Ibid.*

34. TREATY, PROTOCOL AND RELATED DOCUMENTS 129.

35. Columbia River Treaty art. VI. The actual construction of the three dams will be carried out by British Columbia, and the Canadian Government will hand over the United States payment to British Columbia to be used to pay for the construction. See the Agreement between British Columbia dated July 8, 1963 paras. 2(g) and 12(3), reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 100; also see the Agreement between Canada and British Columbia dated January 13, 1964 para. 1 which provides: "Canada shall as soon as it receives . . . monies under the Treaty, pay the full equivalent thereof, in Canadian dollars to British Columbia . . . ." Reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 107; also see Press Release of Prime Minister Diefenbaker dated January 17, 1961, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 86; also see the Press Release of January 22, 1964, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 124-5.

the storage will prevent during the initial sixty year period.[36] In the event any of the storage is delayed in coming into operation the amount to be paid is proportionately reduced.[37] Likewise, if any storage comes into operation earlier than scheduled, payments will be adjusted upward.[38] For the flood storage in addition to the 8,450,000 acre-feet of storage the United States is to pay $1,875,000 for each call for storage for the first four calls only and "shall deliver to Canada in respect of each and every call made, electric power equal to hydroelectric power lost by Canada as a result of operating storage to meet the flood control need . . . ."[39] After the expiration of the sixty year period the United States must compensate Canada in United States funds for the operating costs incurred in providing flood control[40] and in either cash or power at the option of Canada for the economic loss arising from foregoing alternative uses of the storage.[41]

Power

The peak power demands of the Columbia region occur during the cold winter months when the natural runoff is at its lowest point. The peak runoff occurs during the late spring and early summer snowmelt which is supplemented by warm rains. Storage of this spring and summer runoff is mandatory to meet the requirements of the high winter energy demands.[42] At the time of the signing of the treaty 1,132 feet of the 1,288 feet drop from the Canadian border to the mouth of the Columbia was made use of by dams either

36. By using 1957 prices and an estimated 1985 economic level of development in the basin the average annual value of flood damage that would be prevented was calculated at $5.7 million. This figure was then multiplied by the effectiveness factor of each facility and the number of years each would be in operation during the initial sixty year period and divided by one-half to arrive at the Canadian share. This amount was then discounted by 3⅞ percent to take into account the value of the money received at an earlier date. See TREATY, PROTOCOL AND RELATED DOCUMENTS 145.
37. Columbia River Treaty art. VI. The Attachment Relating to Terms of Sale call for the storage to be fully operative for power purposes as follows: Duncan Lake by April 1, 1968, Arrow Lakes by April 1, 1969, and Mica Creek by April 1, 1973. Reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 117.
38. Para. 11 of the Protocol reproduced in 50 DEP'T STATE BULL. 203 (1964); also see Background Paper, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 132.
39. Columbia River Treaty art. VI(3).
40. Columbia River Treaty art. VI(4)a.
41. Columbia River Treaty art. VI(4)b, art. VI(5).
42. INTERNATIONAL COLUMBIA RIVER ENGINEERING BOARD REPORT abstracted in TREATY, PROTOCOL AND RELATED DOCUMENTS 23, 27.

existing or under construction,[43] but much of the utilization of this drop was by run-of-river dams with little or no storage capacity.[44] Consequently, below the border less than half the storage recommended by the Corps of Engineers had been developed.[45] Above the border Canadian storage had not been developed.[46] The treaty calls for 15.5 million acre-feet of storage in Canada, and Canada will have discretion as to which dams are used for particular storage and releases.[47] This Canadian storage will provide increased dependable capacity for the generation of hydroelectric power downstream in the United States.

The downstream power benefits resulting from dependable capacity are to be divided equally between the United States and Canada,[48] and by an exchange of notes the two countries agreed to the sale of Canada's share of downstream benefits from increase of power generation in the United States for a period of thirty years after each facility comes into operation. The agreed price was a lump sum of $254.4 million (United States dollars).[49] The treaty provides that downstream power benefits are to be determined in advance[50] and "will be the estimated increase in dependable hydroelec-

43. 44 DEP'T STATE BULL. 230 (1961); KRUTILLA, *op. cit. supra* note 2, at 6.
44. See INTERNATIONAL COLUMBIA RIVER ENGINEERING REPORT abstracted in TREATY, PROTOCOL AND RELATED DOCUMENTS 24.
45. Only 13 million acre-feet of storage had been developed whereas the Corps of Engineers had recommended 32 million acre-feet of storage. 44 DEP'T STATE BULL. 231 (1961).
46. Austin, *supra* note 7.
47. Para. 7, Protocol, reproduced in 50 DEP'T STATE BULL. 202-3 (1964) and in TREATY, PROTOCOL AND RELATED DOCUMENTS 111, 113.
48. Columbia River Treaty art. V(1). For a criticism of the diversion of benefits that were agreed on in the treaty see KRUTILLA, *op. cit. supra* note 2, at 13.
49. Para. 3 of Attachment Relating to Terms of Sale reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 115, 118. The Protocol eliminated the need for the United States to provide east-west transmission service as called for by Article X(1) of the treaty during any period such as the initial thirty year period when Canada sells her downstream entitlement to downstream power benefits, or if they are delivered at points other than Oliver, British Columbia. See para. 4 of the Protocol and the Background Paper, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 112, 130, 135.
50. The benefits will be calculated first for thirty years from the commencement of operation of each of the storage facilities. Beyond that the treaty provides that because the storage of water resources and the use of hydroelectric power may vary, the benefits are to be estimated initially for a five-year period. Then annually after the first determination the estimate for the "sixth succeeding year" will be made. Thus estimates will always have been made for the full coming five-year period. Columbia River Treaty Annex B(5); see statement by Secretary of the Interior Udall, *Hearings on Columbia River Treaty, supra* note 12, at 25.

tric capacity in kilowatts . . . and the increase in average annual usable hydroelectric energy output in kilowatt hours . . . ."[51] Thus the benefits take into account both "capacity" (kilowatts) and "energy" (kilowatt hours). In making these calculations of downstream benefits the Canadian storage shall be considered as the next usable storage added,[52] and "the hydroelectric facilities included in the base system shall be considered as being operated to make the most effective use . . . of the improvement in stream flow . . . ."[53] The Canadian storage will be used to obtain optimum power generation downstream in the United States until hydroelectric generation facilities are installed at or below Mica Creek in Canada. Facilities are proposed for Devonie Creek, Revelstoke Canyon and Murphy Creek with a combined capacity of 1.9 million kilowatts.[54] When the Canadian generation facilities come into operation the total of 15,500,000 acre-feet of storage that initially is available for hydroelectric power generation at United States facilities can be reduced by no more than 500,000 acre-feet per year up to a maximum reduction of 3 million acre-feet.[55] As the storage for downstream use is reduced, the downstream power benefits to be divided between the United States and Canada will be reduced accordingly.[56]

The initial agreement to sell Canadian downstream power benefits for thirty years after each facility comes into operation demonstrates how these benefits, with the consent of the United States, can be disposed of in the United States rather than being delivered to the Canadian border.[57] This provision

51. Columbia River Treaty Annex B(1).
52. Columbia River Treaty art. VII(2)b. This greatly increases the downstream benefit credited to Canadian storage. See KRUTILLA, *op. cit. supra* note 2, at 18-20.
53. Columbia River Treaty art. VII(2)c. The Protocol changed the period of stream flow for calculating downstream benefits from twenty to thirty years. This has the effect of increasing credit for downstream benefits since it increases the average flow. Para. 8 of Protocol reproduced in 50 DEP'T STATE BULL. 203 (1964); see Background Paper reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 132.
54. Background Paper reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 134.
55. Columbia River Treaty Annex A(7). The terms of Sale Agreement provides that for the sale period the British Columbia Hydro and Power Authority shall offset any reduction "by supplying power to the purchaser, or otherwise as may be agreed . . . ." Reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 117, 119.
56. *Hearings on the Columbia River Treaty, supra* note 12, at 25.
57. Columbia River Treaty art. VIII(1).

allows Canada to sell surplus power, and the United States to supplement its power supply in case of a shortage. At the same time the requirement of American approval protects American markets. Canada's share of energy cannot be used in the United States other than through sales or exchanges of capacity and energy. The by-passing of water at main stem facilities on the Columbia in the United States is conclusive evidence that Canadian energy was not used in the United States.[58]

LIBBY DAM

In addition to the Canadian storage projects, the treaty gives to the United States the option to build the dam on the Kootenai River near Libby, Montana. This option must be exercised within five years after ratification of the treaty. The project would back water across the border into Canada, and Canada would be required to "prepare and make available . . ." the necessary land for flooding.[59] The treaty also requires that the dam be put into full operation within seven years after construction has begun.[60] Libby Dam would back water ninety-five miles upstream and would provide 5,010,000 acre-feet of storage. This would largely prevent flood damage at Bonners Ferry, Idaho, and in the Kootenai flats area in the United States and Canada. Also, sizable reductions in flood damage would be realized on the lower Columbia below the Bonneville Dam.[61] The Libby storage would add 544,000 kilowatts of prime power capacity,[62] and would add 200,000 kilowatt years to the generating potential of the Kootenay River in Canada.[63] Each country retains the benefits that accrue within its territory.[64]

DIVERSIONS

Possible diversions can be placed into two broad cate-

58. Columbia River Treaty art. VIII(4).
59. Columbia River Treaty art. XII(4).
60. Columbia River Treaty art. XII(8).
61. Lt. General E. C. Itschner, Chief of Engineers, U. S. Army, testified that the flood control benefits to the lower Columbia were evaluated at $2,030,000 annually, and for the Bonners Ferry and Kootenai Flats area in the U.S. at $815,000 annually. *Hearings on Columbia River Treaty, supra* note 12, at 57-58.
62. *Ibid.*
63. Background Paper reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 134.
64. *Id.* at 58.

gories: 1) diversions from the Columbia River Basin into other basins, and 2) diversions from one part of the Columbia Basin to another part of the same basin.[65] The proposed diversion from the Columbia into the all Canadian Fraser River would be a diversion of the first category. Such diversions other than for consumptive uses into adjoining basins are prohibited under the treaty without the consent of the other country.[66] On the other hand, specified diversions of stream flow from one tributary of the Columbia into another tributary or the mainstem are allowed. Canada may make the following diversions:

1) Twenty years after the ratification date Canada may commence diverting into the headwaters of the Columbia up to 1,500,000 acre-feet per year from the Kootenay River in the vicinity of Canal Flats, British Columbia, provided that the diversion does not reduce the stream flow immediately below the diversion to less than the natural flow or 200 cubic feet per second whichever is the lesser.[67]

2) After sixty years, but before 100 years from the date of ratification, Canada can exercise an option to divert into the head waters of the Columbia any water that would flow in the Kootenay River across the Canadian-American boundary near Newgate, British Columbia. The diversion cannot, however, reduce the flow below the lesser of 2,500 cubic feet per second or the natural flow.[68] Between the 80th and 100th years the diversion may reduce the flow to the lesser of 1,000 cubic feet per second or the natural stream flow.[69] Also, if the United States does not build Libby Dam or put it into operation within the scheduled time, Canada can divert the waters of the Kootenay so as to reduce the flow to the lesser of 1,000 cubic feet per second or the natural flow.[70]

Except for consumptive uses, both the United States and Canada are prohibited from making diversions other than

65. *Id.* at 131.
66. Columbia River Treaty art. XIII(1).
67. Columbia River Treaty art. XIII(2).
68. Columbia River Treaty art. XIII(3).
69. Columbia River Treaty art. XIII(4).
70. Columbia River Treaty art. XIII(5).

these specified ones (each of which is within the Columbia Basin) without the consent of the other.[71] No diversions outside the Basin are specified, and thus the only valid diversions that can be made into other basins are for consumptive uses. The Protocol reaffirms that water can be diverted out of the Columbia Basin for consumptive uses just to make sure that there is no doubt about this point.[72] This redundant clarification in the Protocol was done to assure the Government of Saskatchewan that water could be diverted to the Saskatchewan River for use in the Prairie Provinces which are becoming short of water.[73] Consumptive use is defined as the use of water for domestic, municipal, stock-water, irrigation, mining or industrial purposes, but does not include use for hydroelectric power.[74] Thus, in spite of the safeguards against diversions outside the Basin, this is a rather large exception through which substantial quantities of water could be removed from the Basin to the detriment of hydroelectric generation developed pursuant to the treaty itself.[75]

The provision that prohibits diversions other than those specifically allowed does not survive the termination of the treaty. This is of particular interest in regard to possible diversions into the Fraser River, since diversion of waters out of the Columbia Basin into the all Canadian Fraser would seriously affect generation facilities on the mainstem of the Columbia in the United States.[76] However, in such an event there would arise the possibility of compensation because the Columbia River Treaty provides that Article II of the Boundary Waters Treaty of 1909 shall remain in effect after

71. Columbia River Treaty art. XIII(1).

72. Para. 6 of Protocol, reproduced in 50 DEP'T STATE BULL. 202 (1964) and in TREATY, PROTOCOL AND RELATED DOCUMENTS 111, 113.

73. Sewell, *supra* note 13, at 324.

74. Columbia River Treaty art. I(1)(e).

75. Sewell points out that it is not likely that Canada will take advantage of this exception in the foreseeable future since there are cheaper alternative water sources for the Prairie Provinces than a Columbia diversion. For example early engineering studies indicate that water diverted from the Columbia Basin would cost $10.50 per acre-foot whereas water from the Peace River would be $.60 per acre-foot and from the Athabaska River $3.50 per acre-foot. All figures are for water delivered to the same point—the South Saskatchewan Reservoir. Sewell, *supra* note 13, at 324; CAN. DEP'T EXTERNAL AFFAIRS, THE COLUMBIA RIVER TREATY AND PROTOCOL: A PRESENTATION 52 (1964).

76. *Hearings on the Columbia River Treaty*, *supra* note 12, at 57.

the termination of the Columbia River Treaty.[77] In the event that Canada makes diversions unauthorized by the Columbia River Treaty before its termination, either the United States or Canada can terminate Article II by giving one year's notice, and thereby make the unauthorized diversion subject to general international law.[78] Thus, the United States, if it finds itself in the position of being an injured downstream riparian, can reject the last vestige of the Harmon Doctrine.

ADMINISTRATION OF THE TREATY

Two permanent bodies are established to administer the development of the Columbia Basin under the treaty. These are the operating entities which can fairly be described as a joint agency and the Permanent Engineering Board. The United States and Canada will each designate operating entities to "formulate and carry out the operating arrangements necessary to implement the treaty."[79] This includes calculation of hydroelectric power to which Canada is entitled for flood control storage,[80] of the amounts due the United States for transmission costs,[81] and the downstream power benefits to which Canada is entitled.[82] The entities will coordinate plans for obtaining the benefits contemplated by the treaty such as flood control and power generation.[83] They will prepare the flood control and hydroelectric operating plans.[84] They will prepare and carry out plans for disposing of Canadian power benefits in the United States, when the two countries agree to dispose of the power in this way as has been done for the initial thirty year period of each facility.[85] Flexibility is provided by authorizing the entities to prepare and implement operating plans that are more advantageous to both countries than the operating plans provided by the treaty in Annexes A and B.[86] The flexibility of this section

77. Columbia River Treaty art. XVII(2). Article II of the Boundary Waters Treaty embodies a modified version of the Harmon Doctrine by giving to each country exclusive jurisdiction over the use and diversion of waters within its boundaries subject to compensation for damage in some cases.
78. Columbia River Treaty art. XVII(5), XVII(1).
79. Columbia River Treaty art. XIV(1).
80. Columbia River Treaty art. XIV(2)(b).
81. Columbia River Treaty art. XIV(2)(c).
82. Columbia River Treaty art. XIV(2)(h).
83. Columbia River Treaty art. XIV(2)(b).
84. Columbia River Treaty art. XIV(2)(h).
85. Columbia River Treaty art. XIV(2)(i).
86. Columbia River Treaty art. XIV(2)(k).

is important in permitting the experience and resulting expertise of the entities to be brought to bear in improving the operation of the resources of the Columbia River Basin. The operating entities and the Permanent Engineering Board are to work in cooperation with each other. The Engineering Board is to record the flows of the Columbia and the Kootenay,[87] make inspections,[88] report substantial deviations in the flood control and operating plans and make recommendations for remedial action where appropriate.[89] The Board also is to assist in reconciling technical or operational differences that may arise between the entities;[90] of particular importance in this regard is the Board's responsibility to setttle disputes over calls for flood control storage.[91] The Engineering Board is composed of two members from each country.

SETTLEMENT OF DIFFERENCES

If the two countries are unable to resolve differences arising under the treaty, either may refer the matter to the International Joint Commission of the 1909 Treaty.[92] If the International Joint Commission is unable to reach agreement within either three months or another agreed upon period, then either country can refer the matter to an arbritration board.[93] The arbritration board is to be composed of three members with each country choosing one member. The third member who is to serve as chairman is to be chosen jointly by the United States and Canada. If either country fails to appoint its member or they cannot agree upon a chairman,

87. Columbia River Treaty art. XV(2)(a).
88. Columbia River Treaty art. XV(2)(d).
89. Columbia River Treaty art. XV(2)(b).
90. Columbia River Treaty art. XV(2)(c).
91. If after the United States entity has called upon the Canadian entity for flood control storage the two entities are unable to agree on the call or its terms, the question is to be referred to the Permanent Engineering Board for final decision. This is practicable even though the Board is evenly divided in membership—two for each country—because the determination is dictated by an objective standard, *i.e.*, whether or not all of the U.S. storage facilities will be unable to control the flood to 600,000 cfs. This is exactly the type of technical assistance that the Board is authorized to do under Article XV of the Treaty. Para. 1(3) of Protocol (this paragraph applies to calls for storage additional to the 8.4 million acre-feet for the first sixty years or any storage after sixty years), reproduced in 50 DEP'T STATE BULL. 202 (1964).
92. Columbia River Treaty art. XVI(1). The Protocol has established a special procedure for disagreements over some types of calls for flood control storage, see note 91 *supra*.
93. Columbia River Treaty art. XVI(2).

then the President of the International Court of Justice is to appoint the member or members.[94] The decision of the arbitral tribunal is to be final and binding.[95] Provision is made for the parties to agree on alternative procedures for settling differences.[96]

DAMAGES

Each country is liable to the other for breaches of the treaty which are not the result of war, strikes, major calamity, acts of God, uncontrollable force or maintenance curtailment.[97] Neither the failure of the United States to begin operation of the Libby project nor the failure of Canada to commence operation of Canadian storage as agreed is a breach of the treaty if the failure is not willful or reasonably avoidable,[98] but if Canada were to fail to begin full operation of a storage facility within the time scheduled, and it was willfull or reasonably avoidable, the downstream power benefits would be forfeited after the commencement of operation for a period equal to the period of delay.[99] The damages for any other breach by either Canada or the United States which causes a loss in power benefits shall not exceed "the actual loss in revenue from the sale of hydroelectric power."[100]

DURATION OF THE TREATY

The treaty is terminable by either country after it has been in force for sixty years, if ten years written notice of

94. Columbia River Treaty art. XVI(3).
95. Columbia River Treaty art. XVI(4).
96. Columbia River Treaty art. XVI(6).
97. Columbia River Treaty art. XVIII(1); the exculpatory provisions of Article XVIII do not apply to para. A(1)(c) of the Initial Sale Agreement which requires the British Columbia Hydro and Power Authority to pay for any reduction in power caused by failure to comply with the schedule for commencing operation contained in the agreement. See paras. A(1)(a) and B(3) of the Attachment Relating to Terms of Sale, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 117, 120; and 50 DEP'T STATE BULL. 204, 205 (1964).
98. Columbia River Treaty art. XVIII(4).
99. Columbia River Treaty art. XVIII(5)(a). The Attachment Relating to Terms of Sale Agreement provides that in lieu of forfeiting power under Article XVIII (5) (a) Canada shall pay 2.7 mills per kilowatt-hour and 46 cents (U.S.) per kilowatt of dependable capacity for each month or fraction of a month that Canada is in breach of her obligation. Alternatively, Canada may at her option supply to the United States other capacity and energy to make up for that which was lost due to the failure to have the facilities in operation as agreed. See Terms of Sale para. A(2); also see paras. A(1)(c) and B(4), reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 117, 119.
100. Columbia River Treaty art. XVIII(5)(b).

the intention to terminate has been given. However, even if the treaty is terminated, some obligations and rights survive:[101] 1) even after the expiration of the sixty-year period Canada shall operate exisiting storage facilities to meet flood control needs so long as flows in the Columbia River in Canada contribute to a potential flood hazard in the United States; 2) the provisions for compensating Canada for the operation of these flood control facilities likewise remain in force;[102] 3) if the treaty is terminated before the end of useful life of Libby Dam, Canada will continue to make available the land for the storage reservoir subject to the Canadian exercise of the option to divert the waters of the Kootenay into the headwaters of the Columbia;[103] 4) the provisions of Article II of the Boundary Waters Treaty of 1909 remain in effect unless the parties have exercised their alternatives under Article XVII.[104]

THE TREATY AS A PRECEDENT

In order to allay Canadian fears that the treaty would establish an inflexibile precedent that would inhibit Canada's freedom to develop to her best advantage other international rivers such as the Yukon,[105] the Protocol declares that "the Treaty does not establish any general principle or precedent applicable to waters other than those of the Columbia River Basin . . . ."[106] Such a disclaimer indicates that the formulas, procedures and solutions arrived at in the Columbia River Basin are not ipso facto transferable to other basins as precedent. At a minimum, however, it does provide an example that may lend useful guidance in developing other international basis shared either by Canada and the United States or other countries of the world. But beyond that, in spite of the disclaimer, the Columbia River Treaty provides yet another precedent of international practice adhering to the principle of limited territorial sovereignty.[107]

101. Columbia River Treaty art. XIX.
102. Columbia River Treaty art. XIX(4), IV(3), VI(4), VI(5).
103. Columbia River Treaty art. XII(10), XIX(3), XIII.
104. See text at note 77 *supra*.
105. See Background Paper, reproduced in TREATY, PROTOCOL AND RELATED DOCUMENTS 128, 132.
106. Para. 12 of Protocol reproduced in 50 DEP'T STATE BULL. 203 (1964) and in TREATY, PROTOCOL AND RELATED DOCUMENTS 114.
107. See Griffin, *The Use of Waters of International Drainage Basins Under Customary International Law*, 53 AM. J. INT'L. L. 50 (1959).

CONCLUSION

Most international streams have been utilized by each riparian country developing its part of the river independently. But independent development is unlikely to make the maximum use of a drainage basin because the area of development is limited by an artificial boundary, *i.e.,* the international border. Even so, the treaty does not achieve anything like the ideal of developing the region or the basin as a whole. The Columbia River Treaty is a half-way house between independent development and basin development. Under the treaty, the parties develop their resources separately, but Canada allows the United States to use Canadian soil for the storage of water for the production of hydroelectric power and the control of floods. Canada in return receives compensation in the form of electricity and dollars.

In spite of this advance over the archaic concept of independent development, there is much doubt that the resources of the basin as a whole will be used as efficiently as they could and should be.[108] Comprehensive regional planning is mandatory in order to achieve the optimum utilization of international streams. All of the physical, economic utilization and engineering considerations of the water resources system as a whole must be taken into account in order to achieve optimum utilization. The administrative agency administering a water resource system must be able to take into account all of characteristics and technological characteristics of the water system.[109] It must be able to look at the whole range of alternative ways of meeting the needs for water and water-related products, and its jurisdiction must be regional,[110] although its real jurisdiction should vary with different uses. For example, the effect of discharges of waste

108. Krutilla says: "based on economic criteria alone, the treaty provides for a system which can be described appropriately as 'second-best.' " KRUTILLA, *op. cit. supra* note 2, at 42.

109. Fox & Craine, *Organizational Arrangements for Water Development,* 2 NATURAL RESOURCES J. 1, 7 (1962); also see White, *A Perspective of River Basin Development,* 22 LAW & CONTEMP. PROB. 157-187 (1957).

110. Bower, *Some Physical, Technological, and Economic Characteristics of Water and Water Resource Systems: Implications for Administration,* 3 NATURAL RESOURCES J. 237 (1963).

may not extend beyond the basin,[111] but the economic effect of the development of hydroelectric power may extend well beyond the drainage basin. Therefore the jurisdictional boundaries of the different uses need not be the same. As Professor Bower points out, "a water resources system does not encompass a single geographic area, but rather a set of overlapping but not necessarily coincident areas."[112] Thus, the jurisdiction of an administrative unit should be flexible enough to vary with the necessities dictated by different inputs and outputs. The indications are that for some uses, the real extent of the jurisdiction of the administrative unit should be the entire Pacific drainage slope of the North American continent. For example, the optimum use of the waters of the Columbia River will very likely require a substantial diversion of waters from that basin in the northwest to other areas within the eleven Western states. The optimum use of hydroelectric power developed by the international streams of the Western United States and Canada will require that the region for these purposes be defined so as to include areas far beyond the natural drainage basin of the water systems themselves. Thus, it can be stated with confidence that comprehensive regional planning is mandatory and that the geographic boundaries of the region must be defined flexibly so as to take into account different uses, if the optimum utilization of the water resource is to be attained.

As the demands for water resources increase, it will become essential to drop the myopic shackles of nationalism and to think in terms of physical and utilization unities and their natural boundaries rather than national borders. We must think in terms of the optimum management of a limited resource rather than the unending development of an infinite resource.

111. For discussion of pollution problems see Lester, *River Pollution in International Law*, 57 AM. J. INT'L L. 828 (1963) and INTERNATIONAL LAW ASSN., REPORT OF COMM. ON THE USES OF THE WATERS OF INTERNATIONAL RIVERS 47 (1962).

112. Bower, *supra* note 110, at 215, 220. "When regional social-economic growth becomes the expressed need, the relevant economic and social groupings are rarely coterminous with drainage areas." Craine, *Economics of Watershed Planning*, in ECONOMICS AND PUBLIC POLICY IN WATER RESOURCE DEVELOPMENT 84 (Tolley & Riggs ed. 1961). See also Brinser, *Id.* at 70-83.