VOL. VII, No. 3 APL → JULY 1963

THE WASHINGTON ARCHAEOLOGIST

WASHINGTON ARCHAEOLOGICAL SOCIETY, P O BOX 84, UNIVERSITY STATION, SEATTLE 5, WN.

Del Nordquist, President C. G. Nelson, Editor

NEXT MEETING: Tenatively scheduled for September 11th. Time, place and program will be announced to the members.

FIELD TRIPS: As soon as water conditions permit, work will be resumed at 45-SN-100, the Snoqualmie River Site. Until this time, excavations at the Fish Town Site, 45-SK-33, will continue. Those interested in being notified each time, contact Del Nordquist, CHerry 2-5602.

IN THIS ISSUE:

FURTHER NOTES ON FISH WEIRS AND TRAPS

AS RELATED TO SITE 45SN100

By Del Nordquist

ABSTRACT: The "drowned" site on the Snoqualmie River is being considered for continued excavation when the water level has dropped sufficiently to allow work. Last year this was impossible because of an unusually wet summer. In anticipation of a more reasonable season a discussion of weirs in the available ethnographies of the immediate areas is made. Haeberlin reported briefly on an actual Snoqualmie weir. Certain omissions can be corrected by an examination of other descriptions, chiefly of the Puyallup-Nisqually, Twana, and Nootka groups. As further comparison and clarification, material from the Klallam, Straits of Georgia Salish, and Kwakiutl are reviewed.

In the August-September issue of the WASHINGTON ARCHAEOLOGIST, 1961, the author made a brief report on a fragment of lattice* found in situ, in which it was suggested that this might have been a part of a trap or weir. The predominant activities, as revealed by the excavation in the lower site, were two-fold:

1. A fishing station as indicated by bound weights; single, unbarbed wooden hooks; and basketry.

2. Specialized wood-working related to fishing, revealed by chipped scrapers and blades; fragments of wooden construction (poles, chip and bark detritus), and quantities of rope, cordage, and lattice made from cedar.

It is evident that the site was primarily used for fishing, with secondary attributes such as hunting and trade.

Suggestions have been made that the site was a multi-purpose occupation. It is naive to assume that any people, no matter how simple their way of life, would not carry characteristics of one or more activities with them in their seasonal food-gathering cycle. It is equally presumptuous to discharge the overwhelming evidence taken from excavation, which supports the premise of a fishing station with wood working as a related activity. Rather than speculate on unknown possibilities, or on minor evidence to date, as seen in an assortment of varied projectile points, one antler, and an occasional bone, the present hypothesis will remain true to the actual data as excavated. For the sake of this paper it will be assumed the the inclusion of other technological and economic traits were part of the total culture brought to the site as a part of daily habits, which might be common to any site in that locality. This in no way refutes the likelihood that hunters may have taken off into the nearby

* WASHINGTON ARCHAEOLOGIST, 1961, Vol. 5, Nos. 8-9

hills for food or that women engaged in berry picking or root digging. Rather these would be expected patterns of food or materials gathered coincidental to fishing.

It has been impossible to determine the seasonal attributes of the site, except as reasoned through the spring and fall migration of fish. A more exhaustive investigation of the upper site must be undertaken to locate evidence of a year around occupation. As mentioned in the ethnographies, traps and weirs were located in streams where the chance of taking fish was the greatest. These were at falls or rapids (Smith: Puyallup-Nisqually) or along shallow bars (Elmendorf: Twana). If other conditions were met a permanent site might occupy the immediate area. Both permanent and temporary occupations are reported for weirs, but ownership and maintenance made it desirable to be in the vicinity. However, the requirements of geographic, climatological, social, and economic needs would be the final determinants.

In a general description of fish traps and weirs, Driver and Massey* remark,

> "A weir is any sort of fence or barrier sufficient to block a fish yet permit the passage of water. The majority of weirs were built in streams, but some were built on the tidelands of the coasts to impound fish when the tide ebbed and flowed. They consisted normally of stakes or posts, driven into the bottom of the stream or tideland, with cross members attached to form a fish-proof latticework."

> "...weirs and traps probably caught more fish per year than any other method. Weirs and traps were especially effective for migrating fish such as salmon and shad. On the Northwest Coast where fishing most completely dominated all other subsistence pursuits, more salmon were taken with these devices than with any other. Even in localities where migratory fish were absent, weirs were built and fish were driven toward them by waders."

The distribution of weirs and traps was quite extensive in North America, spanning the northern half of the continent, covering most of Alaska and Canada, and particularly concentrated along the Pacific and Atlantic coasts. The areas in which the traits were absent were usually in arid or mountainous regions where the subsistence economies could not be based on fish. The use of fish spears, hooks and nets coincides roughly with the distribution of weirs and traps. Fish harpoons were more peripheral, being somewhat narrowly distributed along the Pacific, Arctic, and Atlantic coasts. According to the authors hooks were the most ineffective method of taking fish. How can the single, barbless hooks be accounted for in the Snoqualmie site? This problem was considered in an earlier article by the author (WASHINGTON ARCHAEOLOGIST, March, 1961) in which it was suggested that they may have been used as a gig and not on a line.

The two other categories of evidence supporting a fishing site at 45SN100, basketry and bound weights, have been discussed earlier: (WASHINGTON ARCHAEOLOGIST, September, 1960: basketry types; January, 1961: weights).

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* Driver and Massey: 1957. p. 203

This paper will confine itself to a comparative discussion of weirs as used by the Indians of Puget Sound and Lower British Columbia.

As has been stated, the basic purpose of a weir or trap was to halt fish and effect their capture in large numbers. Fish migration in the Northwest afforded the most opportune time for making a great harvest during spawning season. This seasonal habit of fish propagation gave the Indians a regular and a reasonably sure source of food each year. At a spot where a weir was constructed, the use of materials from the locality was most likely although Indians were not averse to carrying necessary tools and equipment great distances if necessary. In the Puget Sound area most of the needed withes, poles, and cordage could be obtained nearby. Of these materials Western Cedar (Thuja plicata) was most abundant. It is the material from which most of the non-stone artifacts were made.

Cedar has the distinction of being next to the hemlock in the climax sequence of forest trees in the Northwest. It is a tree which can tolerate considerable shade as seedlings and needs considerable moisture to thrive. For the most part it is found in lower altitudes along the rivers, coast, and inland waters. Although frequently found singly in forests today, its seed dispersal pattern would create concentrations of the tree if conditions were suitable to its growth. Western Cedar was found abundantly by the first settlers who capitalized on its rot-resistant qualities, its strength, lightness, and splitting qualities to make shakes and lumber needed in the early building trades. First cuttings drastically reduced the available cedar. Conservation was less a concern in an area where it seemed that the supply was almost inexhaustible. Yet, today the Douglas Fir (Pseudotsuga taxifolia) has superseded cedar as the chief lumber source. Indians who remember the plentifulness of the cedar reflect rather critically on the wholesale removal of the tree, which to them was a chief raw material of many of their industries.

No part of the cedar was considered useless to the native inhabitants. The bark, the inner bark, the wood, limbs, withes, roots, and even the needles had some use. These uses varied from house and canoe building to baskets and shredded bark diapers for babies. In the minds of the Indians there were spiritual implications related to certain uses. Boas describes the ceremony and prayers offered to a cedar tree when felled for canoe making.[1] However reverent this overt display, most uses were not involved with ceremonialization.

In 45SN100 all the basketry, most of the cordage and sticks were cedar. Supports for the weights were cedar, although bound with cherry bark (Prunus emarginata). A large cedar snag in the upper site is believed to be contemporaneous to the occupation, and has been estimated to be at least 500 years old. Live cedar grows in the vicinity even though the immediate region was cleared and made into fields at one time. Further identification of woods used may reveal other sources of material; yet, it is unlikely that any great change in emphasis will take place.

The photographs accompanying this paper were received from the Canadian National Museum. The weir at Duncan, Vancouver Island, British Columbia, was photographed

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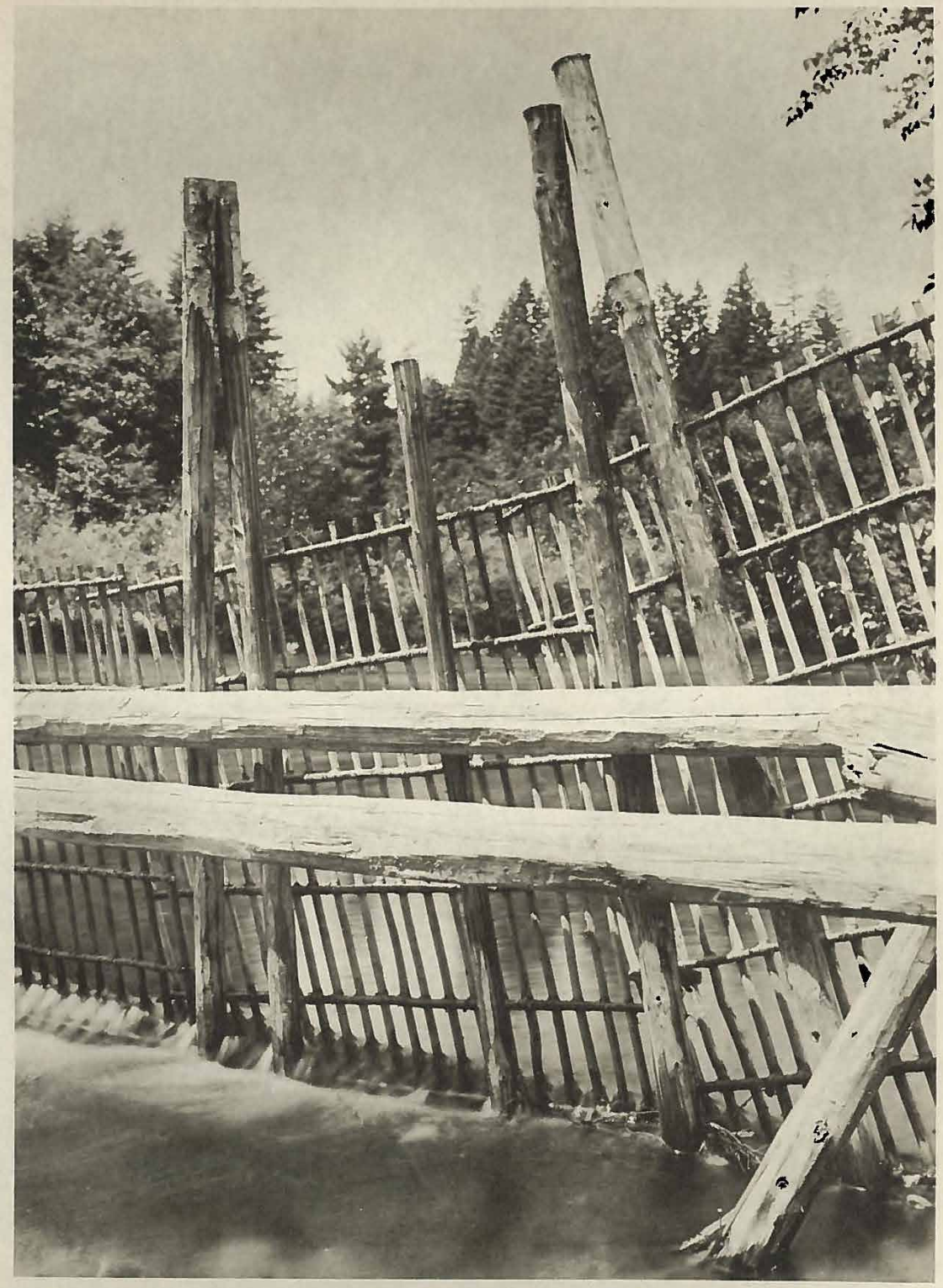
1 p. 617. Boas, Franz, 1921.

Plate No. 1

National Museum of Canada No. 72840 HARLAN I. SMITH 1929

Fish wier, Cowichan River near Duncan, Vancouver Is., B. C.



National Museum of Canada No. 72861 — HARLAN I. SMITH 1929

Plate No. 2 — *Detail of fish wier, Cowichan River, Vancouver Island, B. C.*

Plate No. 3

National Museum of Canada No. 72840

HARLAN I. SMITH 1929

Enlargement of portion of Plate I showing wood detritus.

about 1928 by Harlan I. Smith, and may suggest the appearance of the Snoqualmie site at the time of its use. Plate I shows a man carrying one of the lattice screens for installation. Plate II is an end detail of the weir giving a clear view of the construction and the overlapping placement of the lattice sections. The rough debarking and shaping of the pieces is also revealed, resembling the work on similar pieces found in 45SN100. Plate III is an enlargement of an end revealing a pile of chips which seem ample proof of the wood working necessary to maintain and repair the weir. The very same type of chip is frequently encountered in the detritus of the excavation in the lower site on the Snoqualmie River.

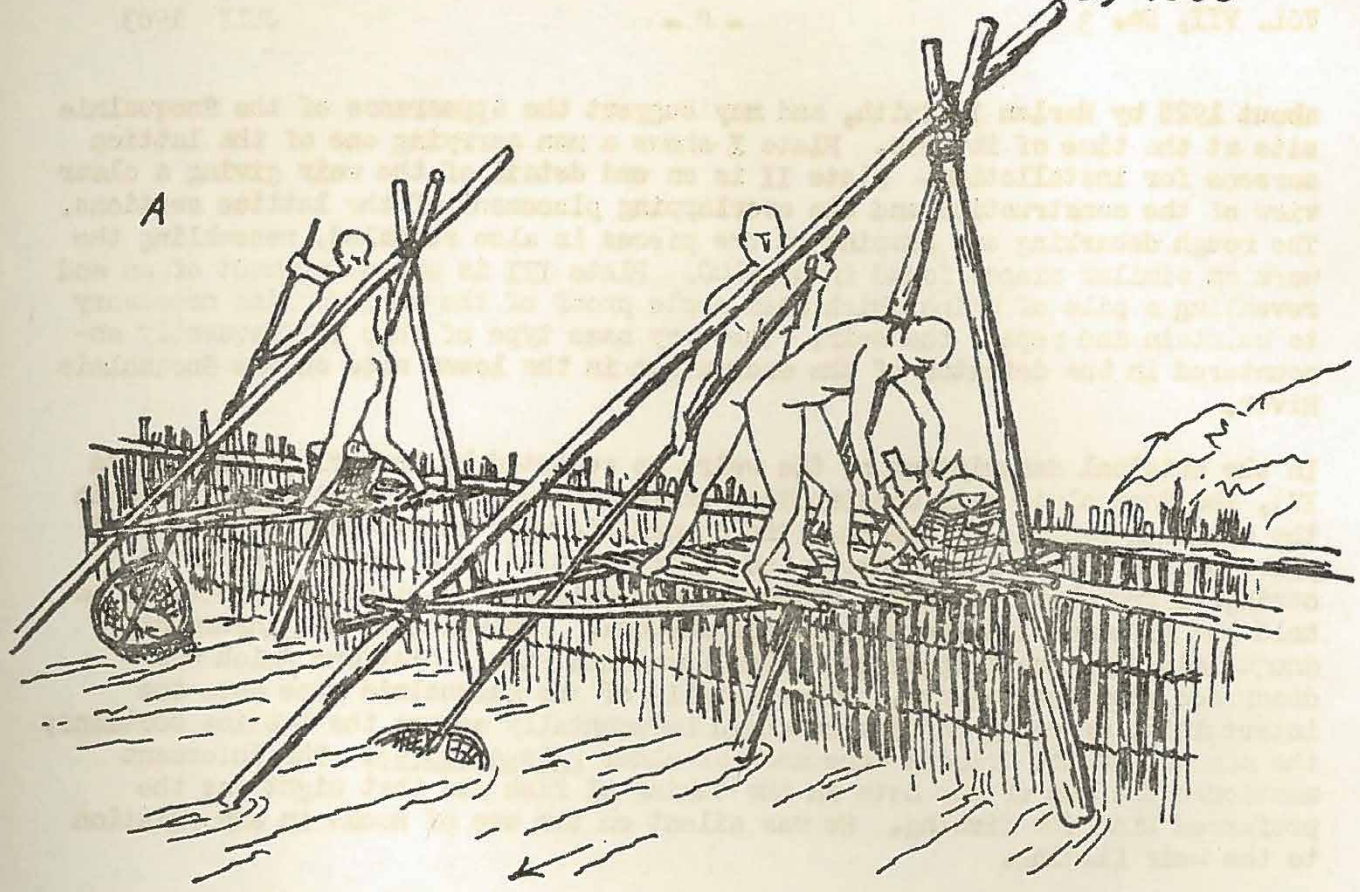
In the original description of the weir, as reported by Haeberlin[1] (see Plate IV), the Snoqualmie weir construction varied somewhat from that illustrated in the Cowichan example at Duncan. The Snoqualmie weir was essentially a row of piles driven like a fence across the river and tied together by horizontal stringers from bank to bank. Tripod constructions were placed at intervals to hold the pile and lattice against the current. According to the informant, Snuqualmie Jim, the tripods were also furnished with a platform which was described as 6 feet square. Other details of the Snoqualmie type were the intertwining of rough cordage extended horizontally across the lattice sections; the members of the tripods were made of alder (Alnus rubra). The informant mentioned the use of dip nets in the taking of fish and that night was the preferred time for fishing. He was silent on the use of hooks in any relation to the weir fishing.

Compared to the Cowichan weir structural variations exist. The tripod bracing and platforms are absent. Leaning supports function to brace the whole of the weir, spaced it would appear at about 8-foot intervals. There seems no real attempt to space the vertical piles in any given pattern, except that they were all close enough together to not allow the subsequently attached lattice sections to collapse for the want of support. Perhaps this spacing was the result of stream pressures altering their position, but not dislodging them sufficiently to make respacing necessary. At least one set of large, horizontal stringers shows across the backside of the piles. From comparative material it would be likely that one or two more series would also exist beneath the water level. In the photographs, the second series of cross-beams lay upon the brace diagonals, serving as added weight to keep them in place, as added stabilization to the whole structure, and as a walking platform as shown in Plate I. Absent from the Puget Sound Weir type are the subsidiary platforms as part of, or separate from the tripod constructions. Lacking the latter, it would have seemed any platforms could have been built across the two systems of stringers. Here the fisherman could have stood, fished, clubbed the fish and stored them in baskets before taking them to shore.

Haeberlin's description lacks two clarifications: 1. How one crossed from tripod to tripod platform; and 2. exactly how a square platform was constructed on a triangular frame between three poles. Perhaps the Cowichan examples suggests a means of bridging using the large members of the horizontal structure. Marian Smith's description[2] clarifies the platform lack of conformity.

1 p. 27. Haeberlin, 1930

2 pp. 258-261. Smith, Marian; 1940



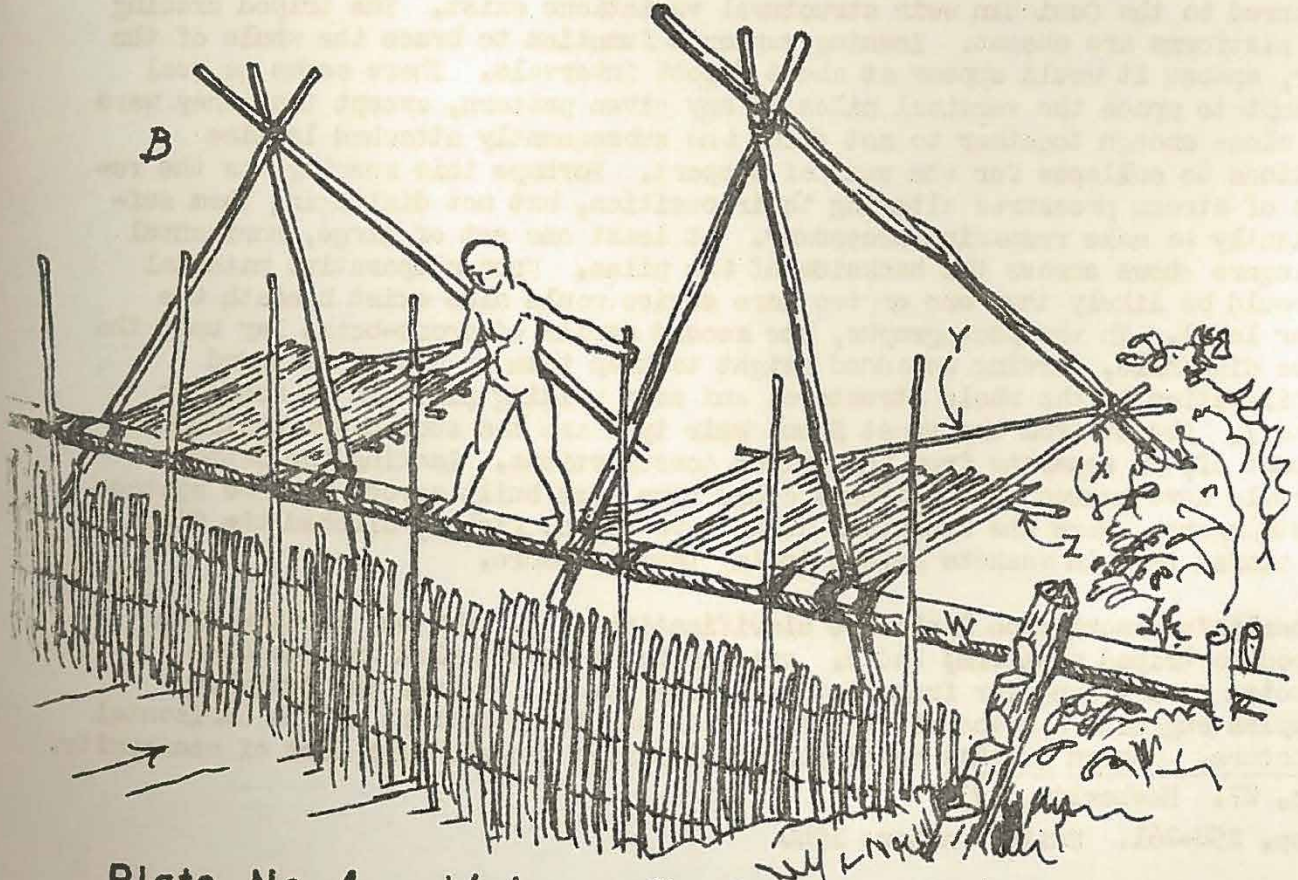


Plate No. 4 Weirs: fig. A, Snoqualmie
fig. B, Puyallup-Nisqually

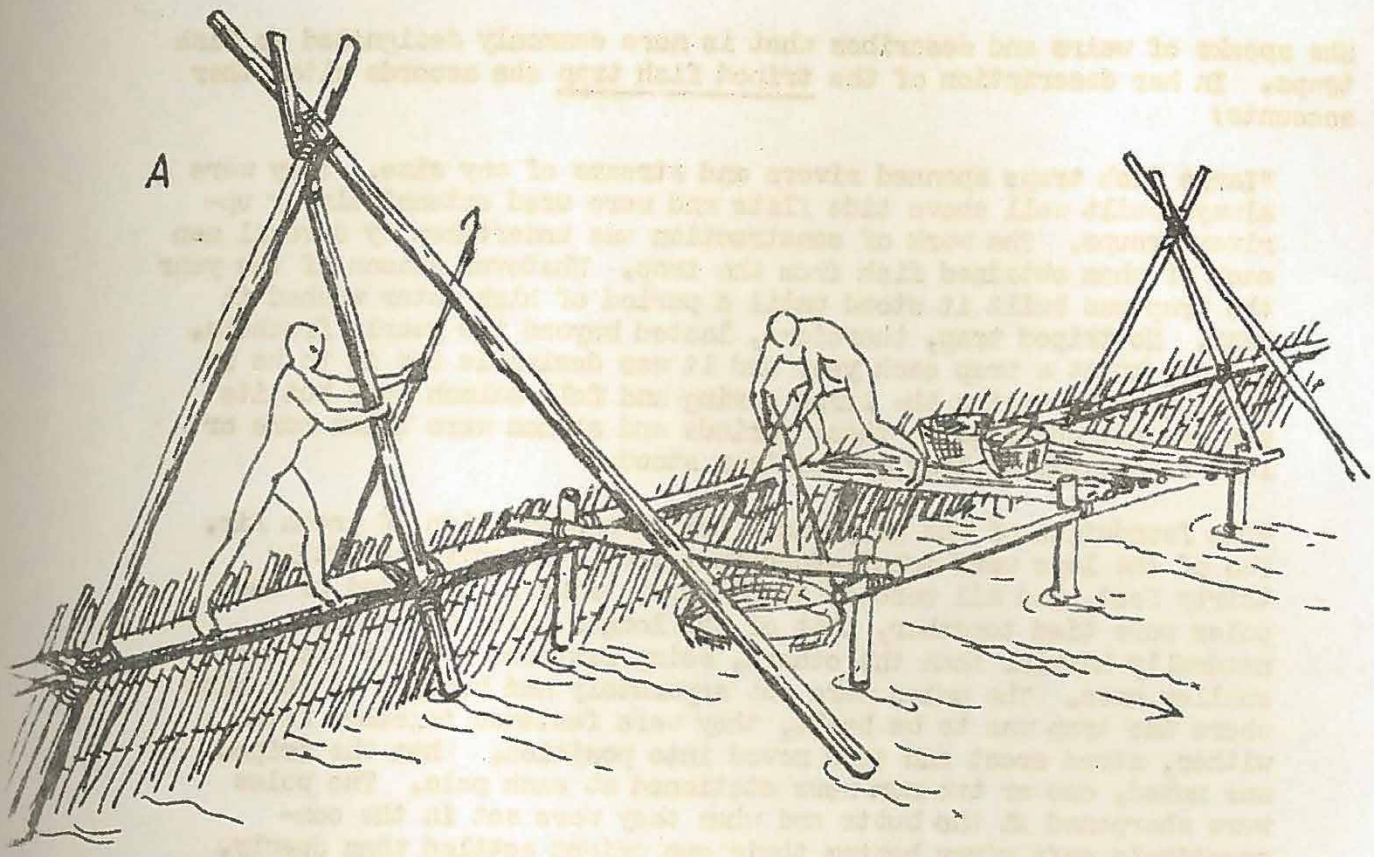
She speaks of weirs and describes what is more commonly designated as fish traps. In her description of the tripod fish trap she accords with other accounts:

"Large fish traps spanned rivers and streams of any size. They were always built well above tide flats and were used extensively by up-river groups. The work of construction was undertaken by several men each of whom obtained fish from the trap. Whatever season of the year the trap was built it stood until a period of high water washed it away. No tripod trap, therefore, lasted beyond the yearly freshets. A group built a trap each year and it was desirable for it to be in working order during the large spring and fall salmon runs but its use was not confined to these periods and salmon were taken more or less constantly so long as the trap stood."

"The foundation of the trap was a tripod construction of green fir. Two of the logs were twenty-four feet long, the third was fully thirty feet, and all were of sound heavy timber. The tips of the poles were tied together, that of the longer pole, which was naturally heavier than the others, being fastened between the two smaller ones. The poles were cut separately and brought to the bank where the trap was to be built, they were fastened together with withes, stood erect and then moved into position. When the tripod was moved, one or two men were stationed at each pole. The poles were sharpened at the butts and when they were set in the comparatively soft river bottom their own weight settled them deeply. The smaller poles were set in line, the bases of those of adjoining tripods being about five feet apart, so that they formed a straight line across the stream. Below these on the down-river side the heavier sticks formed a second parallel line. From two to six tripods were used to span a stream according to its width."

"The series of smaller poles were joined at river bottom level and again at water level by a continuous row of piles tied to them on the down-river side. A third row of poles were fastened to the up-river side about six feet above water level. The two lower rows helped to keep the tripods firm and held them in a straight line one with the other. The upper row of poles formed a walk to the other. Vertical poles were set along the walk on the up-river side about four feet apart. At least one of these served as an additional upright between the tripods to keep the walk from sagging. When a person crossed on the walk he faced up-stream, stepping sidewards and held on to each vertical pole. The pitch of the heavy tripod pole was so great that, although it was on the down-river side of the walk, a person had to straddle over it. When the banks were steep the walk extended beyond the end tripods until it touched land; if the banks were low, it was necessary to walk up an inclined, notched pole to reach the walk."

"On a level with the walk (W) horizontal poles (X and Y) were tied securely, joining each of the two smaller logs of the tripod with the large log of the same tripod. A third horizontal pole (Z) was



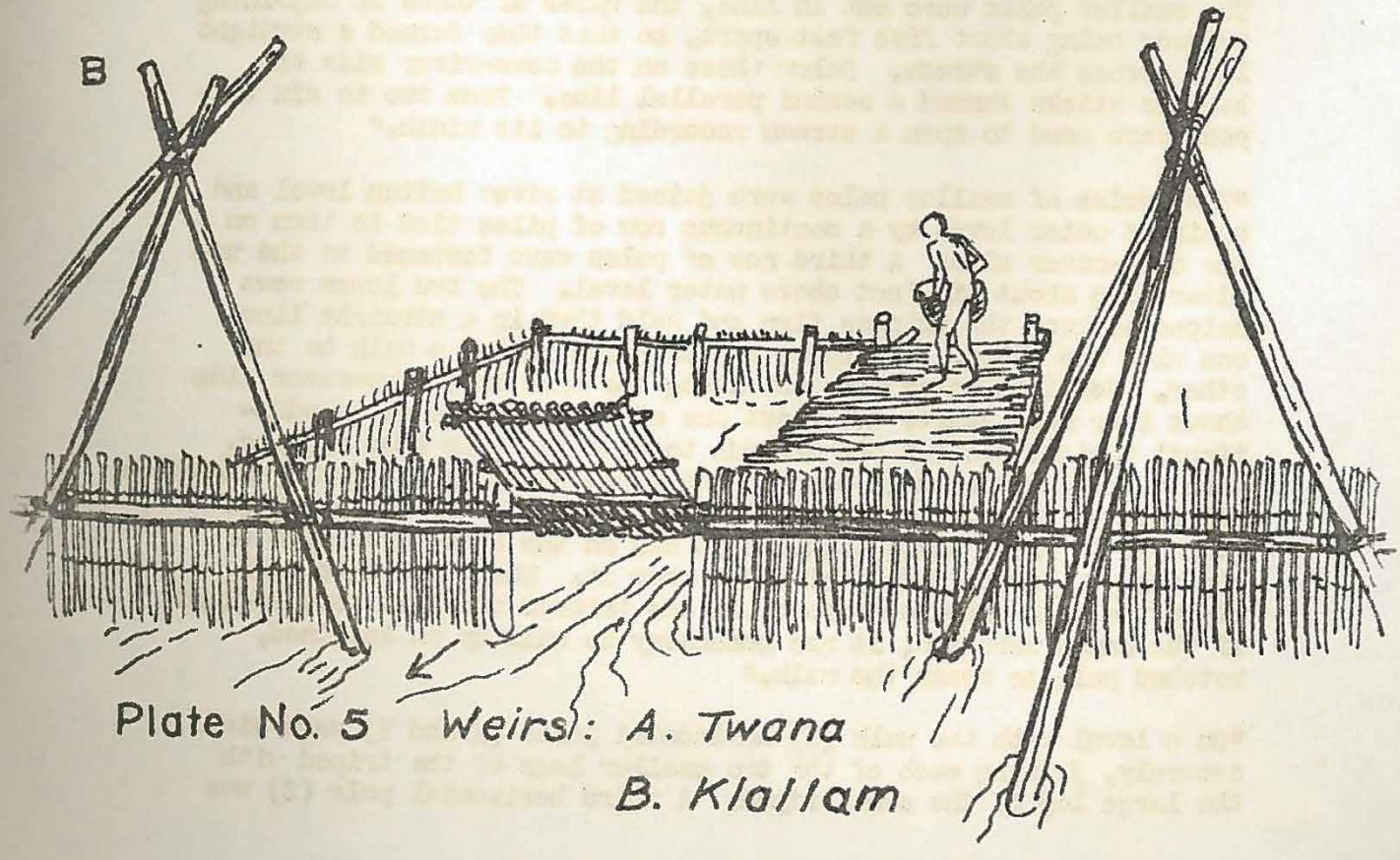


Plate No. 5 Weirs: A. Twana
B. Klallam

now fastened across these (X and Y) parallel to the walk, nearer to the heavy tripod pole than to the smaller ones, and extending several feet over its support (X) on the side of the tripod to the left looking downstream. A platform was now constructed resting on poles W and Z. X and Y served only as supports for Z. The platform was rectangular, five feet wide at W between X and Y, so that between the platform and Y, i.e., within the limits of the tripod, was a considerable free space. Each tripod had a platform of its own connected with the others only by the continuous walk (W). The platforms, like the walk were six feet above the surface of the water."

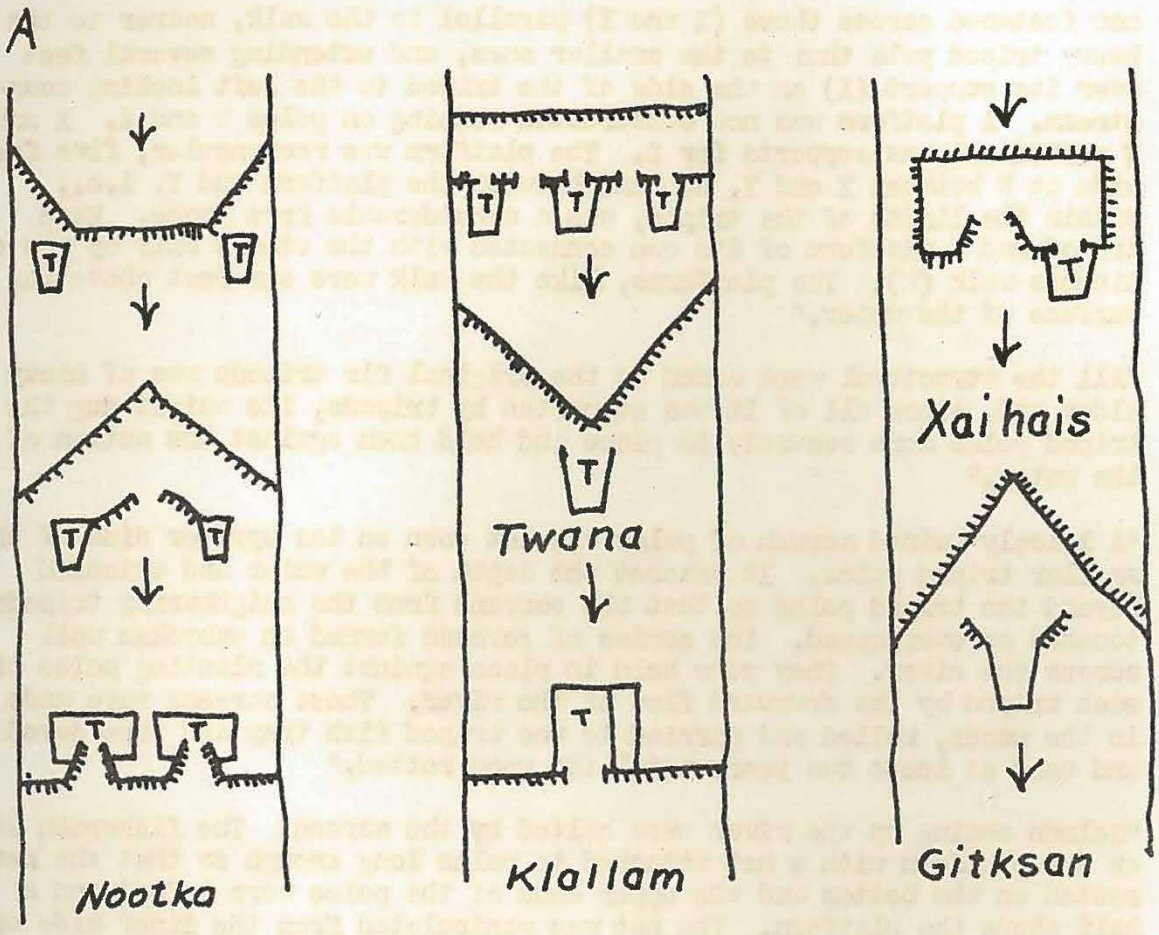
"All the structural work added to the original fir tripods was of heavy alder and, since all of it was supported by tripods, its weight dug the tripod poles more securely in place and held them against the action of the water."

"A loosely twined screen of poles was let down on the upriver side of the smaller tripod poles. It reached the depth of the water and extended beyond the tripod poles so that the screens from the neighboring tripods touched or overlapped. The series of screens formed an unbroken wall across the river. They were held in place against the slanting poles of each tripod by the downward flow of the river. These screens were made in the woods, rolled and carried to the tripod fish trap and were saved and used at least two years until the wood rotted."

"Salmon coming up the river were halted by the screen. The fishermen stood on the platform with a net attached to poles long enough so that the net rested on the bottom and the upper ends of the poles were a foot and a half above the platform. The net was manipulated from the inner side of the platform in the open space between sides W, Y, and Z. When the net was lifted, it could be held with one hand and the fish lifted out with the other. Since, however, part of the circular rim came up under the platform when the net was lifted straight up and could be raised onto the platform only by swinging it outward, it was customary to have an extra pole fastened to the tripod well above the man's head and upon which he could suspend the net, reaching down for the fish with both hands."

"Most of the fishing from the tripod trap was done at night. If it was used during the day time, long periods of inactivity occurred and during these the fisherman lay on his platform and dozed. A Nisqually informant said that a net was sometimes set with a small bow and arrow placed between the crossed pole handle of the net. People left this to attend to other work. When a fish disturbed the net the bow was sprung, the arrow released and, seeing it, someone ran to the platform to take in the fish."

(Author's note: Smith's description is keyed to some illustration. My volume of her work has no such illustration. Therefore, the illustration on Plate IV is based upon the description above and may have minor errors. It is peculiar that the pile system would be placed on the downriver side, i.e., the weakest type of arrangement. The drawing will accord with Smith's description.)



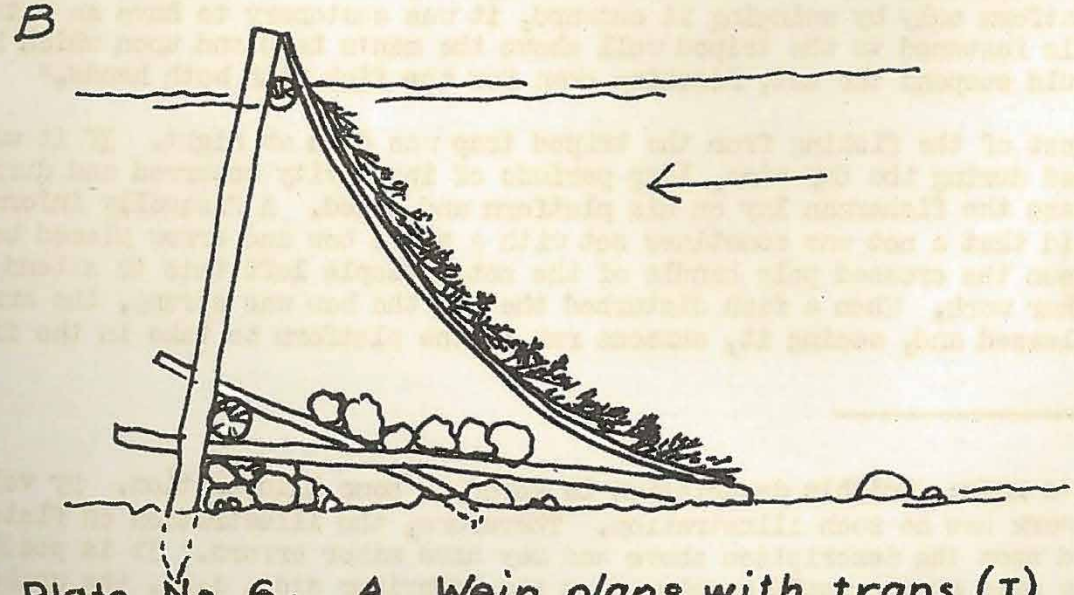


Plate No. 6: A. Weir plans with traps (T)
B. Cross section, Bella Coola weir

Elmendorf* in his discussion of Twana fishing gives a rather clear account of the construction and use of traps and weirs. Plate V illustrates the Twana type weir.

> "A number of weir types were known to and used by the Twana. Commonest was a single dam of lattice frames on tripod pole supports, with associated dip-net platforms***"
>
> "***It could be used in large streams but only where these presented wide shallows or riffles, with two to three feet at the optimal depth. The weir extended completely across the stream. These conditions limited this type of weir in large rivers, such as the Skokomish, to fixed sites which became centers for seasonal congregation. The location of some winter villages may have been determined by adjacent weir sites, as *** the chief Skokomish settlement, but annually used weir sites also existed, at least on the Skokomish, without any nearby village."
>
> "The foundation structure for the weir was a series of tripods of long poles fixed in the river bed. The two upstream members of each tripod were in line with the length of the weir which extended across the stream; the third member projected out downstream. The upstream members supported the face of the weir while the downstream member of each tripod stabilized the entire structure and held it against the current. The row of tripods thus ran across the stream, as did the face of the weir."
>
> "Three rows of stringers, horizontal supporting poles, were lashed across the upstream face of the tripods on the outside of the tripod members. These stringer rows extended from bank to bank, the length of the weir. They formed a support and afforded attachment for the lattice sections constituting the face of the dam. The top stringer across the tripod series was a flattened log which served as a walkway or means of getting out along the weir. It was about four feet above water level."
>
> "The face or body of the weir consisted of removable lattice frame sections which constituted the barrier to salmon swimming upstream. These were constructed of young-growth fir poles about six feet long, laid parallel and lashed together with a weft of twisted cedar-limb cord into sections approximately six by 10 to 12 feet. The cedar-cord weft being flexible, these sections could be rolled up like matting into six-foot long cylinders for transport or storage. Apertures in the sections formed for the cord weft and the 'warp' poles were sharpened and driven into the stream bottom along the upstream face of the supporting tripod row; their upper ends projecting some three to four feet above water level with the poles slanting back in a downstream direction against the support stringers, to which they were lashed at intervals. A row of such lattice sections extended across the entire face of the weir when in use and barred any upstream movement of running salmon. Ordinarily one or more lattice sections were removed for a time each day, or at night except during dip-net operations, to allow some fish to proceed to the spawning grounds or to weirs farther upstream. The Twana believed that the 'salmon people' would be angered if this was not done, and would refuse

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* Pp. 64-68, Elmendorf, 1960.

to return for the next year's run. It is obvious also that complaints would have been forthcoming from the operators of upstream weirs had a downstream community dammed the stream for any length of time, although this situation seems never to have arisen on the Skokomish River."

"While the running salmon congregated along the downstream face of the weir, a good deal of brush and other drift would become caught in the upstream face of the lattice frames. This was dangerous and if allowed to accumulate, would result in the weir washing out. The weir was cleaned daily or oftener by raking the accumulated trash up the slanting surface of the lattice frames with forked sticks and throwing it over on the downstream side. In mentioning this HA added, 'If the frames slanted the other way, upstream, the trash would pile up under them and there'd be no way to clean them.'"

"The single-dam weir was used most intensively in late summer for kings and early-run dog salmon. In the Skokomish it was less used for the late run of dog salmon in September and October, particularly if fall rains were early and heavy. By October the Skokomish was apt to be high or fluctuant with increasing danger of washing out the weirs. Normally weirs were dismantled before fall rains became heavy and the parts stored for the next year. Sometimes only the lattice frame sections were saved and the tripod supports allowed to wash out."

"The prevalent method of using this type of weir involved dip netting from special platform structures. According to FA the weir with top-stringer walkway was sometimes also used for spearing, or for dip netting without platform structures. HA denied the latter point, and I consider it improbable. Spearing off the walkway, or off dip-net platforms, may have been the method for taking most of the late-run dog salmon in the fall, after the water had become high.

"***Several rectangular scaffold platforms were normally built out from the downstream side of the weir, between the supporting tripods, and about four feet above water level. ***Each platform measured a little over six feet, slightly greater than the diameter of a dip-net, in a downstream direction, and extended nine or 10 feet along the weir. The platform frame consisted of vertical poles driven into the stream bed slightly more than six feet downstream from the weir, with horizontal side-pole supports lashed to their tops and running back to the top stringer on the weir, which formed the upstream support for the platform. The horizontal poles and the weir top stringer thus enclosed a rectangular space approximately six by 10 feet in side measurement."

"Part of this space was floored with poles, laid parallel and perpendicular to the weir stringer, forming an area on which the dip-net operator could stand or lie. A square open space, slightly over six feet on a side, was left unfloored; through this the dip net was lowered and raised."

"Midway of the side of this square opposite the weir a fixed dip-net support stake was attached to the edge of the platform frame. This was a stake driven into the stream bed and lashed at its top to the horizontal side-pole support of the platform. This stake slanted from the vertical,

its top farther downstream than its lower end, and was parallel to the slope of the weir-face lattice frames. This support stake enabled the dip net to be sunk well in under the face of the weir, and prevented the current from carrying it downstream."

Gunther makes a special point of indicating that the Klallam often locate their villages along good fishing sites. As in all other ethnographies it is pointed out that seasonal fishing stations also existed which were used only during runs of fish. Generally, the Klallam weir is very similar to the Twana and Puyallup-Nisqually. A special feature is found in the "door" arranged in the structure, serving the same purpose that Elmendorf suggests by the Twana removal of lattice; but also serving a more distinct purpose of channeling the passage of fish to the dip-net platform. This aperture could be used to direct fish into a trap.

"Every river and creek has at least one salmon trap across it. These traps are always kept there except during danger of flood. Of course, the trap nearest the mouth of the river is the most desirable one. This is generally owned by the chief of the village, who tends it at night, leaving it during the day-time for his poor relatives who have no traps of their own. There is always a hole left under each trap so some of the salmon can go up the river."

"The most important trap in use by the Klallam is a weir extending across the river. Young firs about four inches in diameter and ten feet tall are driven into the river bed in two rows, slanting so that they cross at the top. They are placed at intervals of twelve feet across the stream. The crossed tops which extend above the water are tied with stripped cedar limbs. Poles are laid in the crotch of these tied trees. Then two parallel poles are tied to the upstream side of the slanting poles; one just below the water, the other just above the river bed. Now a webbing is made of little fir trees about one inch in diameter. These trees are taken from a place where there is a thick growth so that there are no limbs on the lower part of the trunks. The tops are cut off so that they measure about six feet long. The webbing is made by tying these small trees together with twined cedar limbs and it is then laid against the parallel poles that were tied to the upstream side of the weir. The current pressing against it holds the webbing in place. In the center of the webbing is an opening about three feet broad to which a door is attached. The door is looped on with cedar limbs and can be opened and closed like a window. About twelve feet beyond this door is another webbing about twelve feet broad with sides extending to the trap, thus forming a pocket. On the right side of this pocket, going upstream, a platform is built. Heavy posts are driven into the river bed to support it on the upstream side while the downstream side of the platform rests on the trap itself. The fisherman sleeps on this platform with his head against the protruding poles of the trap so that he can feel the salmon beat against the upstream side of the pocket. Salmon are taken out with a gaff hook. Before the iron hook came into use they used a sack net on a pole."

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pp. 199-200, Gunther, 1927.

> "The owner of such a fish trap always used his trap at night because more fish can be caught then. He always allows other prople to use the trap during the daytime. He tells his friends to be careful not to walk on the webbing of the trap to reach the platform. Generally a little board walk is built from one shore to the platform. The first trap in a river has the best position. After the owner's death his relatives decide who should own the trap. There is no prescribed inheritance."

The Nootka, according to Drucker*, had as extensive and as complicated systems of traps and weirs as any of the Northwest Coast Indians. In his discussion he makes a special point that the construction of lattice, used in weirs and traps, was an industry solely of men.

River weirs, usually constructed in conjunction with some form of trap, were primarily the fencing obstruction which held or directed the passage of fish in migration. In this way, all weirs had an opening leading to the attendant trap which was the important feature of the construction.

> "***Several forms of weirs were used in connection with these traps. Pairs of posts were driven into the river bed inclined so that their tops crossed shear-fashion above the water for lashing. These were placed a fathom or two apart. On the upstream side of the upper posts a horizontal pole was tied, on which the tops of sections of wrapped-twined lattice wide enough to overlap two adjacent shear legs were rested. The lower ends of the lattice were covered with rocks to keep them submerged. Sometimes a catwalk was built on vertical supports over the weir. One variety of weir extended across the middle half of the stream. At the ends, wings slanted upstream to the banks. In the angles formed by the wings and banks, traps of the Yahak type were placed. Salmon going up-river were turned to the sides, and on going up into the angles, turned back into the traps. Another type of weir consisted of two V-shaped fences, one inside the other, with the apices upstream. The apex of the lower V was open to allow salmon to pass through. The arms of the weirs converged to the mouths of two traps." (See Plate VI)

The Twana had weirs described by Elmendorf as double-dam weir for stranding, having a special diagonal downstream member which was used in smaller streams; double-dam weir with basket trap, and converging-wing dam with basket trap. These plans are compared on Plate VI with the Nootkan and Gulf of Georgia Salish.

Barnett has been quoted in the first paper on this subject. Summarizing his description the weirs were very similar to the type described for the basic structure of the Twana, Puyallup-Nisqually, and Snoqualmie, i.e., a series of tripods anchored to a system of piles driven into the stream bed, and tied by systems of horizontal stringers. All had lattice sections placed against them. The platforms were boarded runways in some instances from which fishing was done, or "usually, however, a canoe was used, with one person, commonly a woman, to steady it and another to operate the net, harpoon, or gaff."**

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*pp. 17-18, Drucker, Philip, 1951

** p. 80, Barnett, 1955

Both Barnett and Erna Gunther actually mention the use of the gaff in connection to weir fishing. Gaffs are listed in the fishing gear by Smith and Elmendorf but not implicated in actual fishing situations except by boat.

One source who seems to have omitted the lattice-weir in his ethnographies (or the author has yet to discover it) is Boas. This is most remarkable since few were as thorough, for his time, as he was. However, perusal of his Kwakiutl texts fails to point out this feature, although he does describe with considerable clarity the fish traps made of lattice; also dams and rock traps which resemble the type of weir under discussion only in their use. The omission is all the more remarkable, considering that every neighboring native group had the weir and because the Kwakiutl extensively used the lattice technique in basketry. Drucker fails to give any light on the Kwakiutl. In fact he would substantiate the absence of the weir made of stakes and poles since he has a negative response for them. From the latter author this last quotation is taken and shall suffice for the comparative literature on the subject. The description is that of the Bella Coola* of British Columbia. (See Plate VI)

> "The weir was a tremendous affair, because of the size and strength of the river. At spring low water vertical posts (a) were driven and lashed to horizontal poles (b). Rocks were piled along the upstream side, on which good-sized poles (c) were laid longitudinally with the current. Poles chosen for this purpose were young uprooted trees; the butts were upstream, forced into the riverbed so that the root snags would catch rocks and gravel and be held firmly. The downstream ends, resting on the rocks, were the higher. On these a transverse row of heavy poles (d) was placed, forced down by a second course of longitudinal poles (e) (smaller than the first) on which rocks were piled. A screen or lattice of boughs (f) was rested against this framework, the butts tied to the horizontal pole, the tips downwards to catch gravel to hold them firm."

The exact nature of the Snoqualmie weir at 45SN100 may never be accurately known. From the foregoing references they were rather fragile affairs which necessitated constant attention and seasonal repair. If lattice was used as indicated in the fragment taken from the site, it was probably removed after the fishing season, or discarded, which may have been the case of the piece found. The Snoqualmie River is subject to floods as are most of the short mountain-origin streams in the Cascades. It seems quite unlikely that anything will be found except that which is preserved beneath the gravels deposited on the site. Nevertheless, through comparative ethnographic data it is reasonable to assume that the type weir may have been that described by Haeberlin. The other sources fill in some of the gaps of use and construction which he did not record.

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* p. 238, Drucker, 1950

BIBLIOGRAPHY:

Barnett, H. G. 1939 Culture Element Distribution: IX, Gulf of Georgia Salish. University of California Publications, Anthropological Records. Berkeley and Los Angeles.

Barnett, H. G. 1955 The Coast Salish of British Columbia. University of Oregon, Eugene.

Boas, Franz 1909 The Kwakiutl of Vancouver Island. American Museum of Natural History Memoirs No. 8. New York.

Boas, Franz 1921 Ethnology of the Kwakiutl. Bureau of American Ethnology, Annual Report No. 35. Washington, D.C.

Driver, H. E. and Massey, W. 1957 Comparative Studies of the North American Indians. Transactions of the American Philosophical Society. Philadelphia.

Drucker, Philip 1950 Culture Element Distribution: XXVI, Northwest Coast. University of California Publications, Anthropological Records. Berkeley and Los Angeles.

Drucker, Philip 1951 The Northern and Central Nootkan Tribes. Bureau of American Ethnology, Bulletin No. 144. Washington, D.C.

Elmendorf, W. W. 1960 The Structure of Twana Culture. Washington State University's Research Studies, Monographic Supplement No. 2, Pullman.

Gunther, Erna 1927 Klallam Ethnography. University of Washington Publications in Anthropology, Vol. 1, No. 5, Seattle.

Haeberlin, H. and Gunther, Erna 1930 The Indians of Puget Sound. University of Washington, Publications in Anthropology, Vol. 4, No. 1. Seattle.

Nordquist, D. L. 1960 "Basketry from Site 45SN100." Washington Archaeologist, Vol. 4, No. 9. Seattle.

Nordquist, D. L. 1961 "Bound Net Weights from 45SN100." Washington Archaeologist, Vol. 5, No. 1. Seattle.

Nordquist, D. L. 1961 "The Fishing Hook as Found in 45SN100." Washington Archaeologist, Vol. 5, No. 3. Seattle.

Nordquist, D. L. 1961 "A Fish Weir Fragment from 45SN100." Washington Archaeologist, Vol. 5, Nos. 8-9. Seattle.

Smith, Marian 1940 The Puyallup-Nisqually. Columbia University Contributions to Anthropology, Vol. 32. New York.

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ROCKY MOUNTAIN REVIEW -- A NEW PUBLICATION

-- C. G. Nelson

The first issue of the Rocky Mountain Review has been published by the Rocky Mountain College Press, Rocky Mountain College, Billings, Montana. In defense of its origin and need, Editor Gifford Nickerson has stated:

> "Those who have brought the Review to the publication stage believe that ultimately it will fill a long-standing lacuna in the Rocky Mountain area. Scholarship must not be limited to the classroom, nor to highly technical treatises in professional journals. Rather, the Editorial Board of this new venture believes that valuable and stimulating results of scholarly thinking and research can, and should, be disseminated to a broad audience, which, in turn will welcome such contributions.
>
> Further, the Review has not been conceived with a provincial bias. Thus, whereas the title itself conveys its regional affiliation, there will be virtually no limit to the scope of subject matter or geographical location of authors manifested within its pages. Science, theology, philosophy, anthropology, sociology, history, political science, psychology, criticism, literature (except fiction), art and music--these are the potential areas of exploration in the Rocky Mountain Review, explorations which promise to be stimulating and significant. Volume I, number I illustrates the diversity which will characterize the Review -- international affairs -- theology -- archaeology."

The article on archaeology, Comments on the Origins and Antiquity of Man in the Americas by Donaly C. Grey, provides a statement which is largely a review of much of the literature and thinking on the subject. The summary and conclusions brings this material into sharp focus and equates the memorabilia to the many problems facing the archaeologist.

Knowing the active interest that Gifford Nickerson has in archaeology, we feel that this journal will be worth watching since there will be more to come about our special interests.

The Rocky Mountain Review is published twice a year. Subscription: $2.00 per year. Address: Editor of the Rocky Mountain Review, 1511 Poly Drive, Billings, Montana.

A COLLECTION OF ARTIFACTS FROM THE ALEXANDER LEE FARM ON THE NORTH FORK OF THE SKAGIT RIVER

By Richard Lee

The artifacts in my collection were originally found in the region about the farm. Some of them we found in a fruit jar in the storehouse that had originally belonged to my grandmother, Louise Valentine. Although I don't know how long they were there, it seems that they may have been collected from the early 1900's. No doubt, they were picked up about the fields, and it seems most likely that they came from the "celery garden".

Celery was grown in the low, moist place near the last cattle guard, just before you come through the fir grove. Originally, this was a lake and I'm told that Indians used to come and camp there. You can still see rings of stone, about 10 feet or so across, surrounding the old lake bed. My mother picked up one of the stone mauls from that same area where it lay among some rocks cleared from the field.

Of the things found in the storehouse, in a jar with some agates, the round, flat stones are most mysterious. Two are smooth and flat. One is similar, but with a small knob on one side. One side of this stone is flatter than the other and both have radiating lines scratched in them. The other stone is longer, with a pear-shaped protuberance on top. It seems that this one was shaped for it is rougher near the base of the peculiar shape on top than the sides which could have been smoothed by handling or in a stream. We sent these stones to a nearby college and the only thing they could suggest they might have been used for was for jar-lids by the Hudson's Bay Company.

The two adze blades were also from my grandmother's time. Only one is whole, with a doubly ground cutting edge.

I found the circular scraper (basalt) on a beach on Whidbey Island. It appeared to have been considerably worn by the water.

There are only two arrow or spear points in my collection. One is of a triangular shape with a stem. The shoulders are somewhat rounded. I found this a little distance southwest of the house. The most perfect point is the one made of slate. It is quite thin, compared to its size which is about 3 inches long. It was ground into this shape and has a rather deeply in-curved base. The shoulders are much more pronounced than the basalt piece. It was suggested that the slate point may have been part of a harpoon since some had slate points.

My mother's stone maul and one other is almost whole. Three others have only the lower part remaining.

Once I found a part of a skeleton which was discovered when some dirt was cleared near the lower cabin on the trail to Fishtown. My mother told me to leave it and let someone dig it up. David Rice and Monty Nelson excavated it and found an Indian burial, lying on one side, with the knees drawn up under the chin. The Washington Archaeological Society now has the remains.

(Plates VII & VIII illustrate the Lee collection. The large, broken adze and the two unmarked flat cobbles are not shown.)

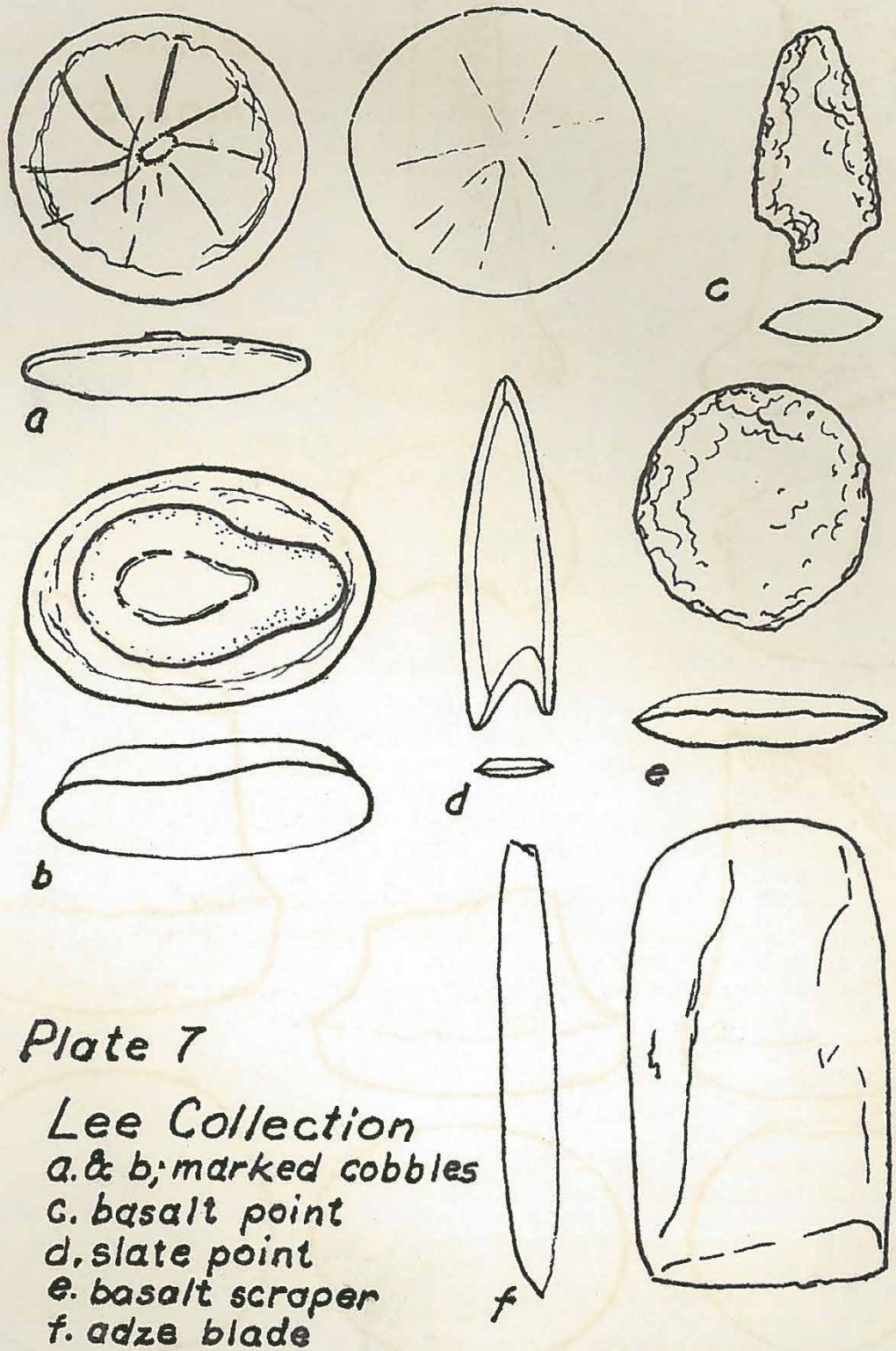

Plate 7

Lee Collection
a. & b; marked cobbles
c. basalt point
d. slate point
e. basalt scraper
f. adze blade

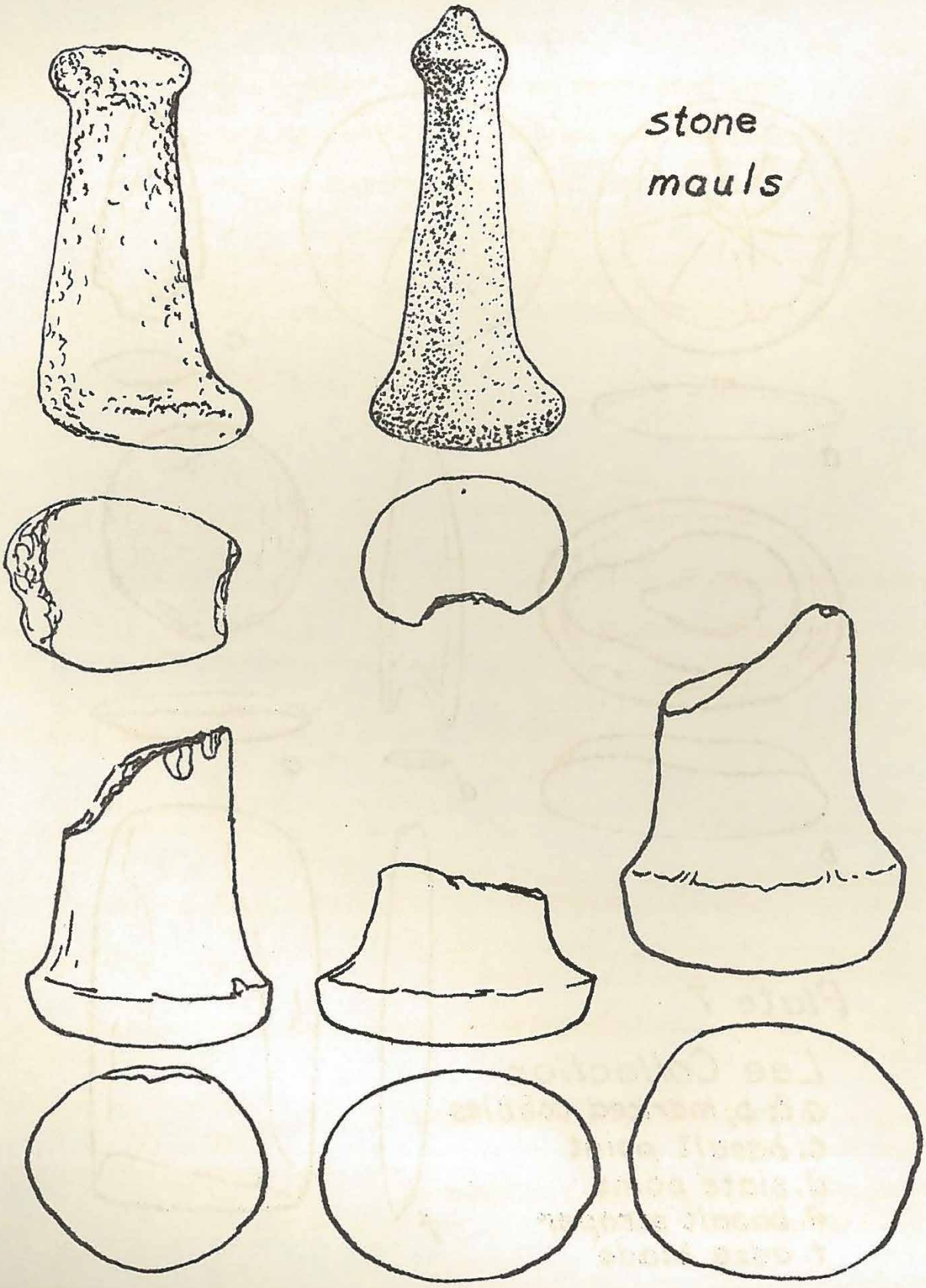

Plate No. 8 Lee Collection

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This Index covers the first five volumes of the WASHINGTON ARCHAEOLOGIST (1957-1961). Only the articles, book reviews and abstracts have been indexed. The earlier issues contained much miscellaneous data that seemed pertinent only for the particular issue in which they appeared. These have been excluded. In instances where titles were not given for some of the articles and abstracts, I have supplied them. These are indicated by brackets.

Mary Gormly
Los Angeles State College

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