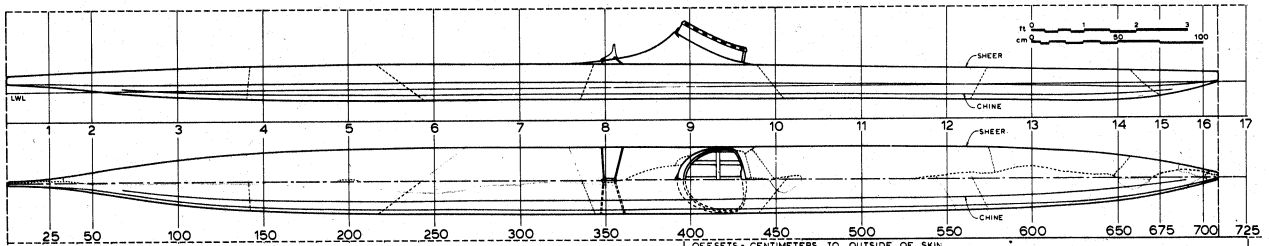
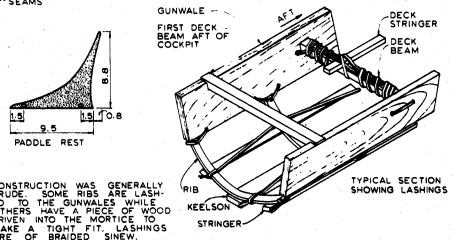
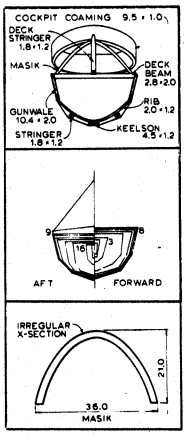


ANATOMY OF THE COPPER ESKIMO KAYAK

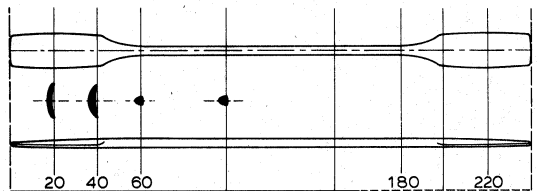
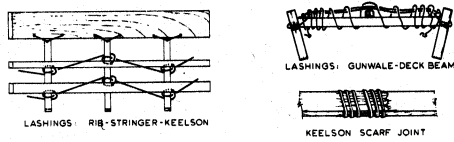


OFFSETS - CENTIMETERS TO OUTSIDE OF SKIN

SECTIONS	STEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	STERN
DECKRIDGE																			
SHEER	27.0	28.5	29.5	31.2	32.9	33.3	33.7	33.8	32.9	32.4	31.5	30.8	29.7	29.0	2.78	2.71	26.5	28.5	
GUNWALE		20.6	21.6	21.9	22.0	21.9	21.9	21.9	21.6	20.9	20.3	19.8	19.0	18.0	18.1	19.9			
CHINE			17.3	15.6	15.3	15.0	14.9	15.0	14.8	14.8	14.5	13.9	13.4	13.5	14.2				
KEELSON	22.5	21.0	18.4	14.2	12.7	12.2	11.9	11.6	12.0	11.8	11.5	11.4	11.0	10.2	12.2	17.5	20.8		
SHEER	1.9	2.8	6.0	13.0	17.1	18.5	18.2	18.2	19.2	19.2	19.2	19.2	18.7	17.1	13.4	8.2	3.5	2.4	
GUNWALE		3.6	11.2	14.9	18.2	16.9	17.0	16.4	16.5	16.4	16.2	15.9	14.9	11.9	8.5	3.0			
CHINE			8.4	10.9	11.1	11.5	11.6	11.5	11.4	11.3	11.2	10.8	10.0	8.5	6.5				



CONSTRUCTION WAS GENERALLY CRUDE. SOME RIBS ARE LASHED TO THE GUNWALES WHILE OTHERS HAVE A PIECE OF WOOD DRIVEN INTO THE MORTICE TO MAKE A TIGHT FIT. LASHINGS ARE OF BRAIDED SINEW.



THE COPPER ESKIMO PADDLE

BLADE - END	0	20	40	60	100	150	180	200	220	240
HALF BREADTH	6.9	8.0	7.2	6.1	2.0	2.1	7.2	18.0	6.8	15
THICKNESS	2.0	3.3	3.5	4.0	4.3	4.0	3.6	3.3	2.0	

15 UNIQUE IN HAVING RELATIVELY WIDE, SPOON-SHAPED BLADES.

BY 1914 KAYAKS AMONG THE LONG, NARROW, UNSTABLE CRAFT IN USE IN THE GREAT LAKES AND RIVERS.

COPPER ESKIMO KAYAK
NATIONAL MUSEUM OF MAN, OTTAWA, CANADA

NMM 11-D-1057

LENGTH 23' 3.2" 709.2
BEAM 15.6" 39.5
DEPTH TO SHEER 8.1" 20.5
WEIGHT 44.0 lbs 200 kg
DISPLACEMENT TO SHEER 741.1 lbs 336.2 kg
CF (PRISMATIC COEFFICIENT) .81
THEORETICAL TOP SPEED 5.8 KNOTS
LOADED KAYAK UNSTABLE AT 1" HEEL SCALE 1:8

COLLECTED BY DIAMOND JENNESS, CANADIAN ARCTIC EXPEDITION, 1913-16
LWL (LOAD WATERLINE) BASED ON 68 kg (150 lb) MAN SEATED 426.7 cm FROM BOTM

LINES AND CONSTRUCTION DETAILS

SHEET 1 OF 1

LINES TAKEN OFF BY DAVID W. ZIMMERLY, AUGUST 1982
DRAWN BY KATHRYN P. IRELAND, 1982

LINES AND CONSTRUCTION DETAILS OF A 23' 3.2" (709.2 CM) COPPER ESKIMO KAYAK COLLECTED BY DIAMOND JENNESS DURING THE 1913-1916 CANADIAN ARCTIC EXPEDITION.

THE COPPER ESKIMO KAYAK PRODUCT OF A NOMADIC LIFESTYLE BY DAVID ZIMMERLY



PHOTO 1: COPPER ESKIMOS ON THE MOVE CARRY THEIR WORLDLY POSSESSIONS INCLUDING A KAYAK, ON A SLED HANDLED BY BOTH DOGS AND PEOPLE.
Photo 20288, Courtesy National Museums of Canada

THE KAYAK represented by the accompanying drawings is the best of three Copper Eskimo specimens that still exist in museum collections. It was constructed by a member of a Copper Eskimo band living in the Coronation Gulf area of the Arctic Coast several hundred miles east of the Alaskan border.

The Copper Eskimo had so little contact with Europeans that they were still hunting with spears, bows and arrows when anthropologist Diamond Jenness collected this kayak around 1914.

CONSTRUCTION

The Copper Eskimo kayak is characterized by a long, extremely narrow hull with a flat deck showing little or no sheer. The cockpit is sharply raked upwards with a heavy deep wooden coaming. The general workmanship is recorded as crude. Samuel Hearne, the first European to contact the Copper Eskimo, remarked in 1771 that the kayaks "... like their arms and other utensils, are, for the want of better tools, by no means so neat as those I have seen in Hudson's Bay and Straits" (1971:167). Photograph 2 illustrates this low level of craftsmanship.

The kayak is built in the usual fashion with two deep gunwales, into which are mortised willow ribs, a keelson (wholly internal keel) and one longitudinal bilge stringer on each side. The

gunwales are separated by mortised-in deck beams. A central longitudinal deck stringer is lashed to the deck beams for additional strength and rigidity. It curves up to meet the cockpit coaming which has its forward end resting on a high, curved deck beam called a *mahik*, which means fish gill and to whose shape it is similar. The 23' 3.2" long (709.2 cm) kayak is 15.6" wide (39.5 cm) and weighs just 44 lbs (20.0 kg). The usual covering for the Copper Eskimo kayak was of caribou skin.

ACCESSORIES

Accessories found with the Copper Eskimo kayak were few in number and generally crude in execution. The most interesting of these items is the double-bladed paddle. The blades were relatively wide at 6.3" (16.0 cm), with a short blade length of 15.8" (40 cm). Its overall length was 7' 10.4" (240 cm), but its most unusual feature was its spoon-shaped blade, concave on one side and convex on the other. Photograph 3 clearly shows the use of this paddle.

Two transverse deck lines just forward of the cockpit held a caribou-antler paddle rest. The paddling technique for unhurried cruising made use of this; the kayaker, having rested the middle of his paddle against the forward part of the paddle rest, gained greater leverage for paddling, with less effort expended. Inuit paddlers in eastern Canada paddled in the same way, but used

HISTORY

the cockpit coaming as a fulcrum instead of a separate paddle rest. The paddling motion was one of sliding the paddle from side to side against the rest. This served to keep the paddle blades low, which reduced windage. It also made for an overall lower profile, making the kayak less visible to nearby game.

Other special deck loops were sometimes placed far forward where lance tips could be secured.

USE

Most kayaking was done by men. Jenness believed that few women actually could manage a kayak. His adopted mother, Higilak, "attempted to paddle her husband's kayak one day, but she was unable to turn it round without capsizing it, and had great difficulty in making the land again" (1923:88). No wonder, using a kayak with a rounded bottom and beam of 15" to 19".

Unfortunately, Jenness recorded little information about the Copper Eskimo kayak. The following may explain why:



PHOTO 2: CRUDELY CONSTRUCTED KAYAK FRAME FROM BERNARD HARBOUR, CORONATION GULF. NOTE THAT SEVERAL DECK BEAMS, THE DECK STRINGER AND THE COCKPIT COAMING ARE MISSING.
Photo 36977, Courtesy National Museums of Canada.

The Copper Eskimo had never seen a umiak, and they used their kayaks not for hunting seals, but only for ferrying across bays and rivers and for spearing caribou that had been driven into the water. Though a hunter generally made or bought a kayak at some time or other in his career, in most districts he used it so seldom that he either disposed of it after a year or two, or else broke up its frame and employed its wood and skin for other purposes. At the time of our visit not one man in ten owned a kayak, or even the frame of one. Around Dolphin and Union Strait I saw only two kayaks, one of them owned by a Victoria Island native, but they became progressively more numerous as one travelled east to Bathurst Inlet (Jenness 1946: 139-140).

This relative unimportance of the kayak appears to have developed as a result of the Copper Eskimo spending the winter half of the year living and sealing through the sea ice, with the summer half spent inland fishing and hunting caribou in the lakes and rivers. Photographs 1 and 4 show two different means of transporting kayaks from one camping site to another. In winter, a hunter stored his kayak without its covering since caribou skin did not last long, especially in the presence of hungry dogs. In the summer, kayaks were stored on top of stone pillars, also to keep away dogs and foxes. Photograph 5 shows a kayak in winter storage up on snow blocks. But even the lashings were of interest to the dogs.

A nomadic lifestyle with a fair emphasis on inland living probably contributed to the kayak becoming very light, long and narrow. This type of hull configuration provides for maximum speed in pursuing swimming caribou, who could achieve 5 or 6 knots through the water.



PHOTO 3: KANUVAK IN HIS KAYAK AT PORT EPSWORTH, 15 JULY 1915.
NOTE WIDE SPOON-SHAPED PADDLE BLADES.
Photo 38561, Courtesy National Museums of Canada.

Jenness found that the Caribou Eskimo obtained most of their caribou through a communal drive.

... the animals were either herded through narrow gaps where the archers lay concealed in shallow pits, or were driven into the lakes and speared while swimming. . . Lines of stones, with here and there a stick to which a coat or a flat resonant board is attached, are run down each side of the valley from the deer to the lake, where the hunters lie concealed in their kayaks. The women and children behind the deer howl like wolves hu-u-u-u hu-u-u-u, and the startled deer move down between the lines until they reach the water. There they stop irresolute, afraid to dash off to a flank on account of the barricade of stones and streamers.

HISTORY



PHOTO 4. ALTHOUGH LIGHTWEIGHT AT 44 LBS., THE KAYAK MADE AN UNWIELDY LOAD. NOTE THE LANCE AND BIRD SPEAR ON THE FOREDECK, HELD IN PLACE BY LOOPS OF BALEEN.
Courtesy National Museums of Canada.

The "wolves" draw nearer and nearer until the frightened deer one after the other rush into the water and try to swim across the lake. Then the kayakers dash out, each man armed with a short knife lashed on the end of a pole. One after another the helpless caribou are stabbed in the nape of the neck, nooses are thrown over their horns and their carcasses dragged to the shore (1923: 148-149).

The drive technique often led to severe overkill. A police patrol in 1917 "found deer carcasses strewn all along its (the river's) banks under the snow. Evidently the natives had speared them

that summer and taken only the skins, leaving the meat to be devoured by the wolves and ravens" (p. 149).

CONCLUSION

I would hazard to say that, due to its awkward measurements, this craft may not have much promise as a modern recreational kayak. As an historical artifact, however, it holds much interest for what it tells us about the Copper Eskimo as people and as kayakers.

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PHOTO 5. IKPUKHUAQ'S KAYAK FRAME STORED ON SNOW BLOCKS IN BERNARD HARBOUR, 23 APRIL 1916
Photo 39016. Courtesy National Museums of Canada

A set of plans for the Copper Eskimo kayak NMM IV-D-1057 is available from David W. Zimmerly, 193 Holmwood Ave., Ottawa, Canada K1S 2P3. Other kayak plans are available — write for a list.

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