

EVOLUTION OF THE NORDKAPP KAYAK

Nordkapp sea kayak, unloaded, off the Motueka coast

This is the first in our new series written by one of New Zealand's best-known canoeists, Graham Egarr, who recently completed a 10-part canoeist's guide to New Zealand. Graham will be writing regular articles in Sea Spray from now on . . .

WHEN Paul Caffyn completed his solo circumnavigation of the South Island by kayak, he gave most of the credit to his boat. However, those who followed his voyage and have seen the photographs he took, are left wondering at his sanity, amazed at his seamanship, and knowing that his claim is a little modest.

Nevertheless, his craft did play an important role in the success — an achievement that will not often be repeated by others.

It is interesting to note that his kayak, the Nordkapp Sea Kayak, is not from the drawing board of any naval architect or designer, but is a direct evolution from a native craft — the West Greenland Eskimo Kayak. Where it differs from the original native model, the change has been due to construction in modern GRP materials, not to any inherent faults in the shape of the original.

The craft often seen on our rivers and lakes called "canoes" or "kayaks" are not, in fact, derived from original Eskimo craft at all. The modern sports kayak evolved from boats "invented" by one John McGregor.

McGregor had seen etchings of Eskimo

craft and had what he thought was a similar craft built. It was a 14 ft (4.3 m) x 3 ft (0.9 m) planked skiff which he proposed to paddle with an Eskimo-type, double-bladed paddle.

In this "canoe" (as he called it), McGregor (in 1865) paddled 1000 miles through the waterways of Europe and North Africa and his subsequent book^s and lectures popularised both the craft and the sport.

by GRAHAM EGARR

It was from these planked, double-ended craft that the modern river kayak evolved and this now bears little resemblance to the original, native craft.

The McGregor canoe (called the "Rob Roy") was used by early European canoeists in New Zealand and some notable voyages were accomplished. George and James Parkes of Hokitika paddled their Rob Roy canoes up the West Coast to the Taramakau River, up the river and over Harper's Pass thence down the Hurunui River to Motanau, out to sea and down the East Coast to Kaiapoi.

They are, however, better known for their crossing of Cook Strait in February 1890, when they spent 31 hours in their canoes on the voyage from Mana Island to Picton. Their boats were 14 ft (4.3 m) long and 27 in (686 mm) in beam and they later continued the trip from Picton to Dunedin.

In 1895, W. and G. Fitzgerald crossed Cook Strait in a double canoe and in 1896, 16-year-old H. Shearman made a solo crossing in an 18 ft (5.5 m) long, 18 in (457 mm) beam craft. Although it was a Rob Roy craft in shape, it had the dimensions of a West Greenland Kayak.

It was, perhaps the Rob Roy canoe, rather than any original Eskimo craft, that influenced the designs of Ray Forno most. He canoed from Auckland to Great Barrier Island, Whangarei, Cuvier Island, Tauranga and as far north as North Cape, as well as from Oamaru to Christchurch. His canoes were designed to be watertight and stable so that the canoeist could (as he often did) close the spray cover and ride out a storm shut below deck. He slept and ate in his craft, which is something few other canoeists have attempted.

The development of fibreglass canoes and kayaks was the catalyst that started

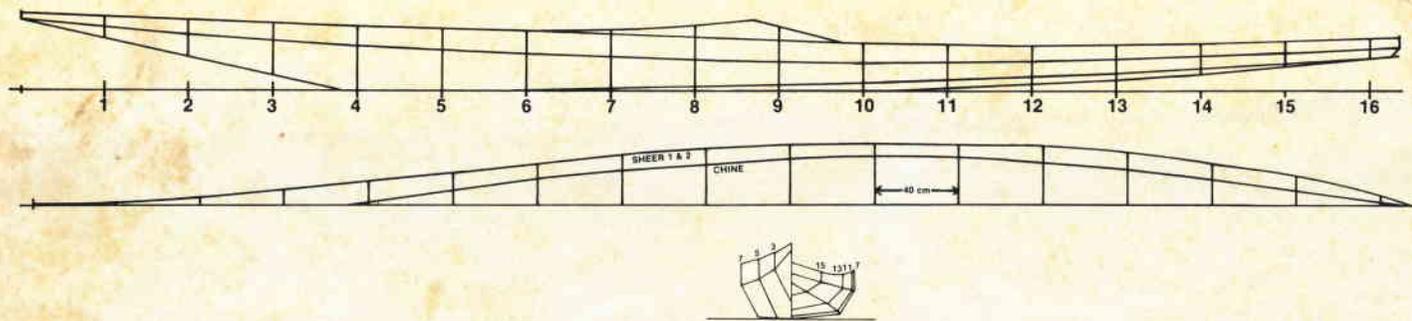


Fig 1 — Kayak from the northeast coast of Labrador, now in the US National Museum

sea canoeists on the road back to their traditional origins. Up until the fibreglass era, canoeists tended to design and build their own craft to suit their particular design ideologies, even if the majority were still thinking along the lines of the Rob Roy type. With the fibreglass revolution came mass production and the first craft available were those that had the larger market, namely river craft. The sea canoeist offers only a small market and, if he wanted a fibreglass sea canoe, he was usually content to adapt the longest and narrowest of the touring river canoes.

In the late 1960s a few sea canoeists believed there could well be a market for specialist sea kayaks and wished to take advantage of the uncluttered interior of the monocoque structure of the fibreglass hull that would permit hulls little wider than the paddler's hips. They began hunting for suitable designs and this search took them into museums to the genuine Eskimo craft — the supposed basis of all kayaks, evolved by the Eskimo over more than 1000 years for hunting in the open sea.

In much the same manner as the style of Maori carving tends to change from one tribal group to the other, so, too, the styles of Eskimo kayaks differ. The main distinct groups are the Aleutian, Mackenzie Delta, Caribou, Baffin Land, West Greenland, and South Greenland types. These tend to merge in the boundary areas between one region and the next, but are named here in order to simplify identification of the various types.

The kayaks of the Aleut and Alaskan area are of the multi-chine and round-bilge type with high ridge decks. These have not been copied in the design of modern sea kayaks for a number of reasons. First, because of an absence of this type in UK

museums, but mainly because the influence of European ideas, chiefly from Russian fur traders in the late 1700s, has altered the design from the original Eskimo model.

The high decks tend to create excessive windage, despite which these were excellent sea craft, as evidenced by stories of fur trade expeditions when enslaved Eskimos were forced to paddle beside the mother ship on voyages up to 1000 miles, travelling day and night in their two-man craft.

Kayaks of Point Barrow and the Mackenzie River area have been ignored, too, because their main purpose was for crossing flat water, leads in the ice-pack, and

and the Labrador Coast. The Labrador, or Baffin Land kayak, is distinguished by the long, gradual sweep of the decline to the stem and the deep forefoot with wide, shallow stern sections (Fig 1).

The baseline shown in the lines drawing of a typical Labrador kayak is not parallel to the actual waterline; the craft floats with the forefoot being the deepest part of the hull. This has the effect of bringing the kayak head-to-wind when paddling in open sea — a very important aspect of sea kayak design as, to maintain a heading with wind and sea beam, requires sweep paddle strokes on the windward side so that the paddler is automatically leaning



Nordkapp kayak. Note hatches which have canvas covers in this instance. For more boisterous conditions an aluminium or fibreglass hatch seals the hatch beneath the canvas covers. The paddler's spray sheet seals the boat completely and is an absolute necessity because of the very low freeboard of these craft

they needed to be hauled and sledged over ice. Their design was not based, necessarily, on any need for an able sea-boat.

The Caribou kayaks of West Hudson Bay were short, light craft used for herding caribou at river crossings where they could be spread for food and hides. The main criteria of these craft were high manoeuvrability and low weight, so they, too, do not make for good deep-sea work.

The main focus of attention for the sea canoeist has been on craft from Greenland

into both wind and breaking wave tops.

A kayak that tends to run off requires inefficient stern-rudder turning rudder strokes or, worse, sweep paddle strokes on the leeward side that can easily result in a capsized.

The relatively beamy 24 in to 27 in (610 mm to 686 mm) flat-bottom Labrador kayak provides a stable craft on flat water but may give trouble in steep seas when the paddler needs to heel the boat into the wind. These craft are difficult to execute

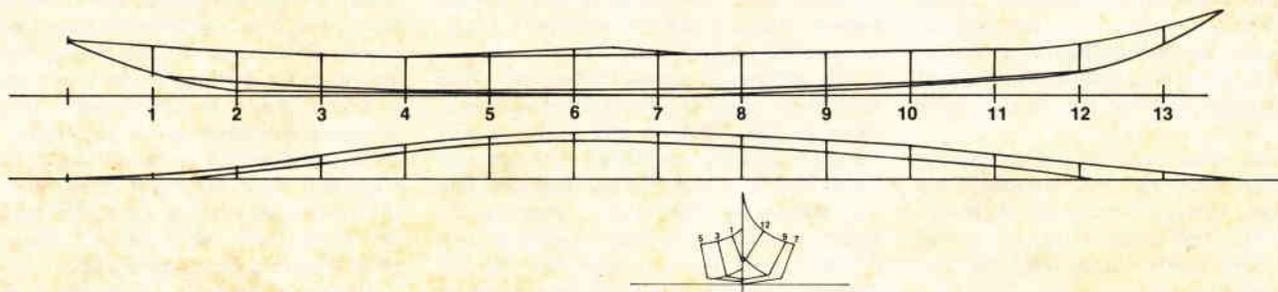


Fig 2 — Kayak from northwest Greenland, Disko Bay Circa 1839, now in the Medico-Chirurgical Soc. Rooms, Aberdeen

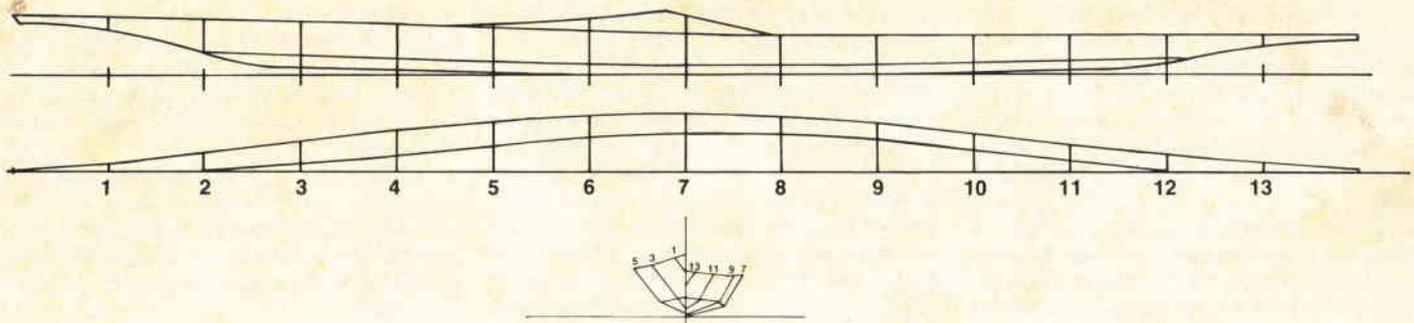


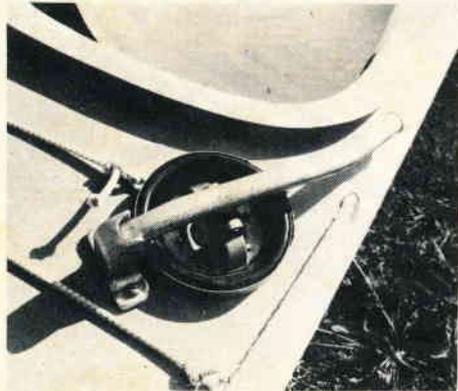
Fig 3 — Kayak from southeast Greenland, Angmassalik, now in the Scott Polar Research Institute, Cambridge

the Eskimo roll in and, consequently, only a few replicas have been built.

Kayaks from the West Greenland (Disko Bay) area (Fig. 2) and from the south and east (Angmassalik, Fig. 3) are probably the most highly-developed of all Eskimo types, similar in many respects, apart from one notable feature, the sheerline.

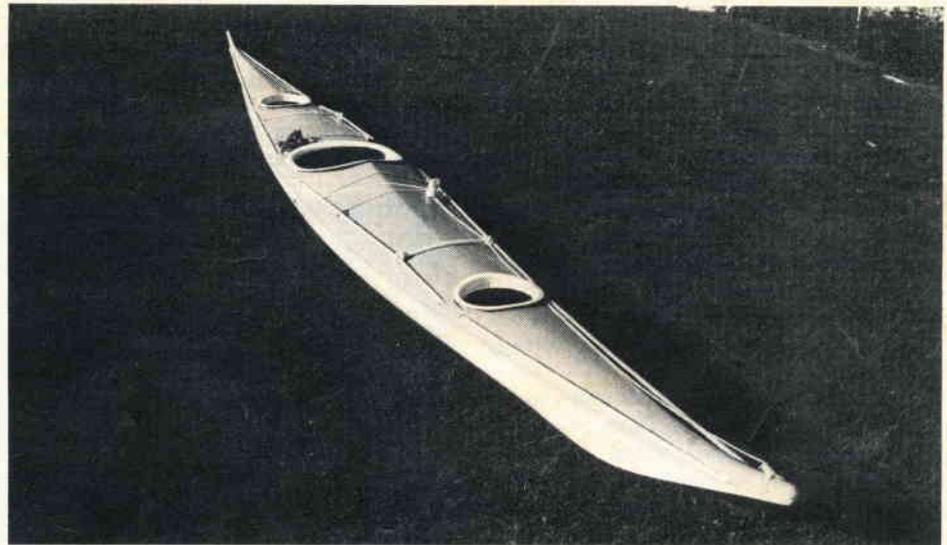
The lines given as representing the West Greenland kayak show a remarkably high stern which has two important functions: first to act as a sort of wind vane to provide the head-to-wind tendency required of any sea kayak that is likely to be used in rough

The bilge pump can be worked with one hand without moving from the paddling position



conditions, and second, to lower the centre of buoyancy when the craft is capsized, thus helping the paddler to execute the Eskimo roll and retain an upright position.

The Angmassalik kayak shown (Fig. 3) typifies southern kayaks of low freeboard which are exceptionally narrow on the waterline. These were built for the high-speed necessary in hunting seals. The southern and eastern Eskimos tended to



Note system of deck lines. Main lines running fore and aft are rescue lines needed for holding the craft when landing or launching off beaches and rock shelves. Lines run continuously around the deck, and in tunnels below the deck in the cockpit area to prevent the canoeist becoming entangled. Athwartship lines are of elastic material to hold flares, charts and similar equipment

hunt from the 'mother ship', the Umiak. These were large 30 ft by 5 ft (9.1 m x 1.5 m) open sealskin boats capable of carrying a number of kayaks on hunting expeditions. Consequently, there was less likelihood of these kayaks being used in boisterous conditions, and the craft needed the head-to-wind tendency less.

D.H. Clarke, in his book **An Evolution of Singlehanders** (pub. Stanford Maritime, London, 1976) notes a number of instances when Eskimos have appeared on the western shores of Europe having been supposedly blown across the North Atlantic. Many of these actual craft are now in various British and European museums, most noted being that in the Medico-Chir-

urgical Society building and whose lines I have used as an example of the West Greenland style of kayak (Fig. 2).

This particular kayak, together with one in the British Museum and that in the Scott Polar Research Institute (the lines I have used as a South Greenland craft, Fig. 3), were the basis of the first attempts to build replica craft. However, these three kayaks represent the more extreme of the styles. The West Greenland Kayak is particularly narrow with little reserve buoyancy in the forward sections. The Angmassalik is exceptionally narrow and unstable and not particularly suited to European use as Eskimos are shorter in stature and thus have a much lower centre of gravity. ►

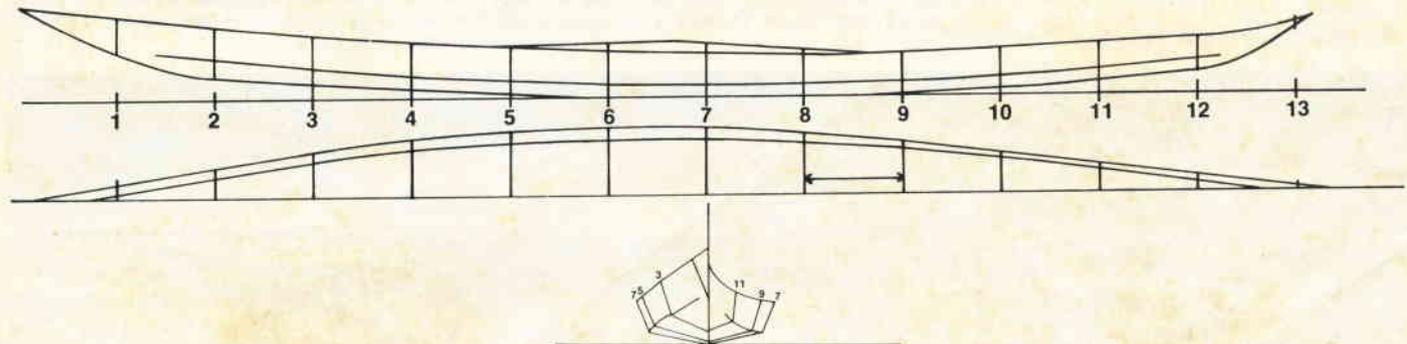


Fig 4 — Lines taken from a southwest Greenland kayak from the village of Iqolorssuit and brought to Scotland in 1959 by Ken Taylor. This kayak has been the model on which many modern sea kayaks have been based and is similar to the Greenland kayak in the British Museum

In the summer of 1959 Ken Taylor made a private one-man expedition to Western Greenland and bought back to Scotland the kayak represented by the fourth set of lines (Fig. 4). This particular kayak excited special interest because it was a more moderate example of the West Greenland type.

This kayak has been copied a number of times, most noted being the kayak built by Geoff Blackford in 1971. Blackford redesigned the boat to fit his own particular dimensions, retaining the upturned stern, and ended up with a plywood model 17 ft (5.2 m) long with a 21 in (533 mm) beam. In all other respects the craft was identical to Ken Taylor's boat.

Blackford's craft was used as the plug for a fibreglass mould and eventually found its way to Frank Goodman of Valley Canoe Products who went into commercial production under the name of 'Anas Acuta'.

The Anas Acuta, the first really successful fibreglass replica of an Eskimo craft, was used on a number of expeditions but was considered to be a poor load-carrier, being very fine in the ends.

A noted British mountaineer and exponent of outdoor education, Colin Mortlock, proposed an expedition along the Arctic fiords of Norway to Nordkapp, the northern-most cape of Europe. Mortlock and his team paddled the Anas Acuta kayaks around the Isle of Skye but believed that a new sort of boat would be needed, one that could take huge quantities of supplies without losing too much manoeuvrability and seaworthiness.

Eventually, Frank Goodman came up with a refined version of the Anas Acuta kayak, a round bilge version capable of the extra payload required. This is the Nordkapp Kayak being built under license in New Zealand by Sisson Industries of Nelson.

The Nordkapp, since its appearance, has completed major voyages, even by standards of modern ocean yachting. They include the 469-mile Nordkapp Expedition, a crossing of the North Sea, a voyage along the East and West coasts of Greenland and, last summer, a trip around Cape Horn. In this country Paul Caffyn has circumnavigated the South Island and will attempt to circumnavigate the North Island this summer.

The Nordkapp must be considered as

the most sophisticated sea kayak being commercially built in the world. The photographs show it to have a close resemblance to the original West Greenland Kayak of Ken Taylor's for which the lines are given (Fig. 4). The length has been increased to 5.5 metres, beam to 54 cm. Weight is 25 kg with a carrying capacity, not including the canoeist, of 90 kg and a cruising loaded speed of 4 to 6 knots. Paul Caffyn found that he could cover up to 50 miles in an 11-hour day, travelling faster loaded because of increased stability.

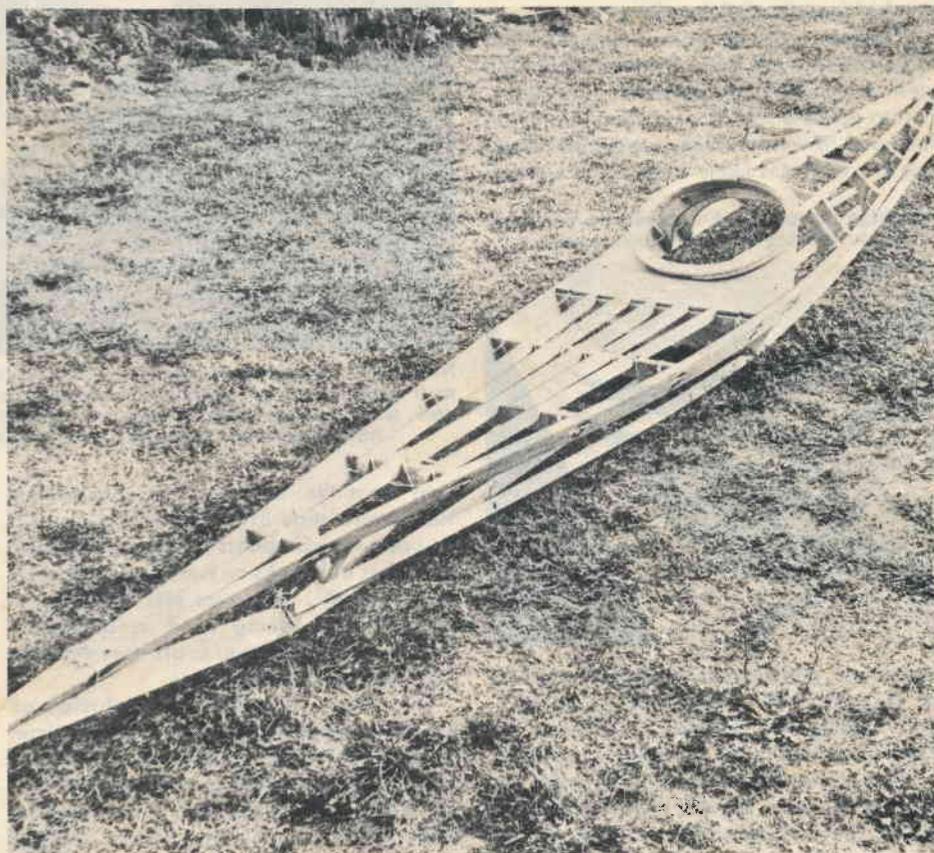
Grahame Sisson, the New Zealand builder, has given a great deal of thought to safety aspects. The kayak has watertight bulkheads fore and aft of the cockpit with large hatches let into the deck. The hatches have proven to be so watertight that changes in temperature during a day's

canoeing have, on one occasion, created a partial vacuum in the hull, causing water to be sucked through a damaged section of the hull. This problem has been solved by installation of a pressure valve built into the bulkheads.

A bilge pump is a standard piece of equipment and this makes the craft self-sufficient at sea so that in the event of a capsize and failure to roll upright, the craft can be righted, pumped out and the voyage continued.

In Great Britain canoeists have even been known to install VHF radio equipment in Nordkapps.

I doubt if anyone will ever attempt to emulate the Eskimo who paddled from Greenland and arrived in the Skaggerrak, Norway in 1607, but the Nordkapp kayak would be the craft for the trip. □



Replica of a south-east Greenland kayak style built along traditional lines. Note main structural members are the gunwales which allow the craft to flex more than if the keelson had been the principal member. Deck beams are mortised into the gunwales and secured by lashings and this fixes the basic shape of the hull. Bent ribs are then fixed to the gunwales and the keelson and chines simply bent around. The hull is then canvassed. Note numerous longitudinal deck beams to take the weight of equipment carried on deck

