

A manual to accompany the series of four films on the art of canoeing.

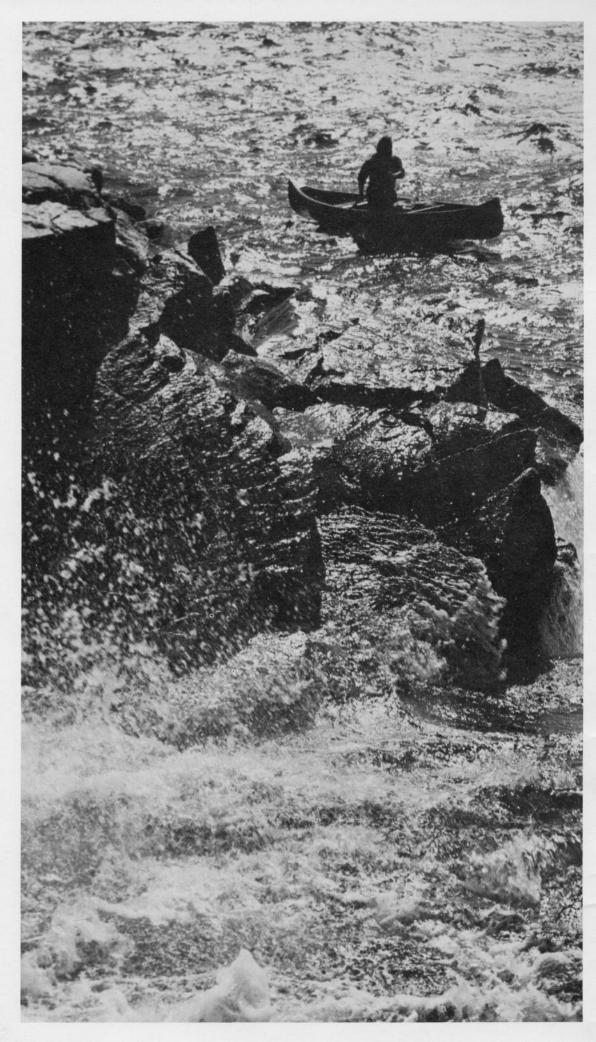
Path of the Paddle

solo basic, solo whitewater, doubles basic, doubles whitewater.

A series of four films designed primarily to teach the art of paddling in the varied conditions to be found in wilderness travel. There is more to canoeing than paddling a straight line or getting from point A to point B. There are at least 15 basic strokes with endless variations and combinations to move the canoe in any direction regardless of wind, waves and rapids. The object is to become one with your canoe.

The advantages of learning through film are obvious, but there is a problem. How can one possibly hope to retain all that information? Instant recall is what is needed when you actually get into the canoe and attempt to apply what you have just learned. It is hoped that this booklet will be of some assistance. There are also many excellent books on the market and this booklet is soon to be followed by a comprehensive, fully illustrated volume to be entitled "Path of the Paddle", published by MacMillan and Co.

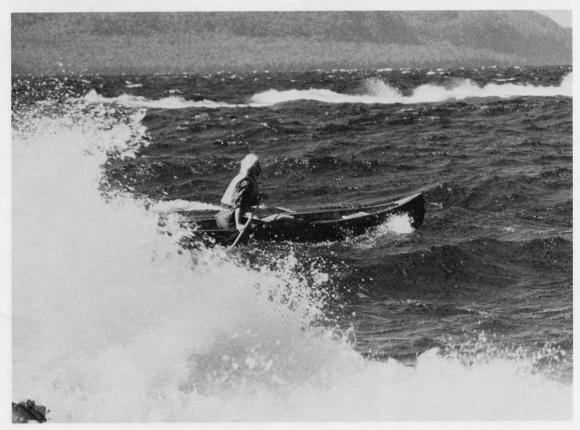
This booklet is of necessity brief. The information is limited to how to canoe and does not deal with what to do when things go wrong. It is strongly recommended that paddling in rapids and large waves only be attempted in the company of experienced canoeists. It is not difficult to find and join a canoe organization. The danger of film is that it looks deceptively easy when you do everything right. But when things go wrong, you might well wish you had stayed on the portage trail. Misjudging the speed of a current can turn an upstream ferry into the running of a dangerous rapids backwards. While experience comes through doing, someone else's experience can assure your survival to try again.





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It's been almost a hundred years now since the lakes and rivers last echoed with the songs of the voyageurs. The forty-foot canoes of birch bark are a thing of the past, but the art of paddling is still very much alive.

The canoe is no longer a vehicle of trade and commerce. It has become instead the means of exploring or, perhaps it would be more fitting to say, rediscovering what is left of the natural world.

You won't find many people travelling alone nowadays. The lone trapper or prospector has given way to the pleasure canoeist, paddling double or in groups for companionship and safety. But learning to paddle solo is still fundamental to the art of canoeing.

Paddling is referred to as an art because it is a creative skill. There are more than 15 basic strokes with endless combinations and variations to control the canoe in any condition of wind, waves and rapids. Even the position of the paddler in the canoe changes to compensate for wind and currents. The canoeist must learn to choose the right position for any given moment to compensate for the ever changing moods.

1 Paddling positions vary with wind, waves, and rapids. The most stable position is kneeling amidships braced against the bow seat. By sliding over to the gunwale into the cruising position, paddling is made easier.

But the wide kneel is safest in waves and rapids. To rest the legs, alternate one leg out – and, there's nothing wrong with sitting on the seat for relaxation. Sitting on the heels in the centre of the canoe is painful until you get used to it, but this is the position you must learn to paddle from to experience the sheer joy of having total control of your canoe, to move the canoe in any direction.

- 2 The effect of wind on the canoe is a paddler's biggest single problem. The high end will always swing around down wind. Paddling into a wind from the stern is definitely a lost cause. Kneel near the centre so the canoe rides level or even in front of the centre. In this position you will find it amazingly easy to paddle into the strongest of winds.
- 3 Paddling a straight course can be accomplished in a variety of ways. A forward stroke causes the canoe to veer away from the paddling side. Changing sides every few strokes gets you where you want to go but in a day's paddling you'll cover a lot of extra miles.

A stern pry, done at the end of each stroke will correct the veering away from the paddle side. Without instruction you will almost certainly turn the power face of the paddle (the side that pulls against the water) towards the canoe. This is known as the goon stroke. There are four ways to steer more efficiently.

The J stroke is executed by turning the power face of the paddle away from the canoe and prying off the gunwale. The path of the paddle describes a J. As you reach the end of the stroke, the thumb on your upper hand should be pointing down.

Steering takes place at the end of the stroke.

4 The Canadian stroke (an improvement of the J) is done by knifing the paddle forward under water during the recovery – steering is accomplished by pulling up on the blade. Steering takes place during the recovery.

It's harder to learn than the J, but a relaxing and beautiful stroke. To make a turn to wards the paddling side, angle the paddle deeper in the water and pull up harder during recovery. The paddle can be pried off the gunwale or it can be done without touching the gunwale.























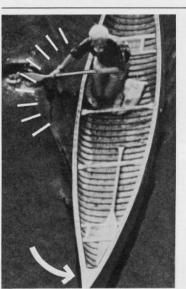






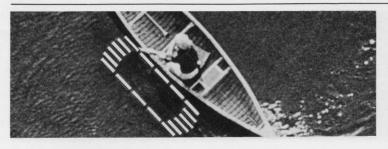














In the Pitch Stroke, the rolling out of the paddle begins early and continues throughout with the paddle leaving the water at the end of the power stroke. It's called the pitch because of the angling of the blade.

By pitching the blade early steering is accomplished during

the power stroke.

With just the right amount of pitch the canoe will follow a dead straight course with very little effort wasted in steering.

It's a fast efficient stroke, but not as relaxing as the Canadian.

6 The Indian stroke provides steering control during the entire stroke. The paddle remains in the water by knifing the blade forward under water. Rotate the paddle in the upper hand to begin the next power stroke. The paddle remains in the water making one revolution per stroke with the steering taking place continuously.

If done slowly and carefully there is no sound from the paddle. A good stroke for sneaking up on animals.

A powerful inside turn can be accomplished by drawing in as the paddle comes around to the bow. Roll the paddle half-way through the power stroke and pry away hard at the stern.

This is the stroke to use in strong winds and heavy rapids to maintain complete control of the canoe throughout the entire stroke.

A sweep stroke will turn the canoe away from the paddle side. In fact, just doing a power stroke without the steering action on the end of the stroke will cause the canoe to veer away, but sweeping the paddle wide to increase the arc of the blade from the pivot point enhances the turning effect. The bow jam will turn the canoe even more violently. Slip the paddle into the water as far forward as possible and hold it at an angle, allowing the momentum of the canoe to do the turning. As momentum slows, follow with a series of pries and the canoe will pivot on the spot. The one hand pry enables you to reach farther forward and adds a little class to the manoeuvre.

8 The box stroke is another method of pivoting the canoe within its own length. The paddle is pried away at the bow, knifed to the stern and drawn in towards the stern, then knifed forward to the bow and repeated. The paddle remains parallel to the canoe throughout and describes a rectangle. To pivot in the opposite direction, draw in at the bow and pry out at the stern. Lean the canoe right to the gunwale.

- 1 The cross draw is sometimes preferable to the bow pry for turning away from the paddle side. The paddle can be kept close to the surface to avoid catching a rock in rapids. Reach across the canoe without changing hands on the paddle and draw towards the canoe. The cross draw can be followed by a power sweep to enhance the turning effect.
- 2 Power turns are more effective than pivoting on the spot, but the degree of difficulty is also greater. Begin the power turn away from the paddle side by doing a sweep stroke then jam the paddle in at the bow and hold, allowing the momentum to do the turning. You must get the angle of the paddle just right or you'll be catapulted overboard. As momentum slows, follow with a series of pries to continue the turn.

For a power turn to the paddle side reach out and forward, plant the paddle in the water with the power face open and hold. As momentum slows, draw in towards the bow and follow with a power stroke ending in a strong steering stroke. This stroke can be referred to as the C stroke because of the path of the paddle. By knifing the paddle forward and rotating it in the upper hand to begin the next draw at the bow, the C stroke becomes the Indian stroke.

3 In rapids, sideslipping is more often desirable for changing course than turns and pivots to avoid broadsiding onto a rock.

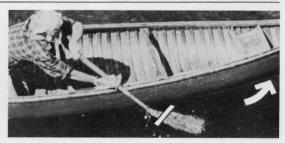
For a sideslip to the paddle side reach out at a 90° angle from the canoe and pull the paddle directly towards the body. For an underwater recovery, the paddle can be sliced away from the canoe.

- The sculling draw is more effective because with the paddle remaining in the water the pull is continuous. The paddle is knifed back and forth with the paddle pitched at an angle. As you get better at it, allow the paddle to describe a figure of eight with a strong emphasis on the draw in at each end. Some people call it the figure of eight stroke. An effective and powerful stroke for sideslipping in rapids. With the paddle remaining in the water, the stroke is extremely stable for rough water.
- 5 A sideslip away from the paddle side is accomplished with a pry off the gunwale. The pry must be done right beside the body or the canoe will turn. With the pry, the underwater recovery is usually preferred.













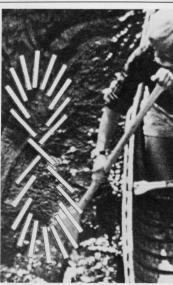






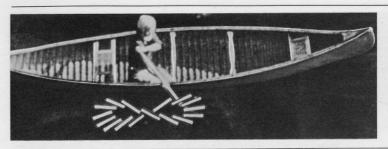












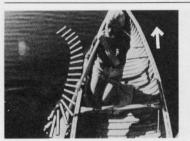
























- 6 Reverse sculling accomplishes the same thing. It's a very similar stroke to the sculling draw but the angle of the blade is reversed and the paddle is pushed away from the canoe. It's a nice stroke but not as effective as the pry stroke.
- 7 To sideslip under power with the draw, plant the paddle straight out at a 90° angle from the body and hold with the power face open. As momentum slows, begin the sculling draw to continue the side slip.
- 8 Sideslipping under power with the pry moves the canoe away from the paddle side. Slip the paddle into the water and hold at an angle right beside the body. As momentum slows, begin the pry to continue the sideslip. The angle of the blade is controlled by the upper hand. If the canoe turns, adjust the position of the paddle towards the bow or stern as required.
- 9 Back paddling can be accomplished by doing a reverse J. Begin the backwater by drawing in slightly towards the stern. Near the end of the backstroke, roll the power face out and pry away from the bow. To turn towards the paddle side, increase the draw in at the stern and emphasize the pry away at the bow. Back sculling off the stern is the preferred method in rapids because of the constant bracing effect.
- 10 The flat brace stabilizes the canoe because the paddle acts like an outrigger. If the canoe is stationary, the paddle must be sculled to keep it up near the surface. In the flat brace, the palm of the upper hand faces up.

The high brace is similar, but the palm of the upper hand faces down and the weight is leaned out on the power face of the blade. The more weight you trust to the paddle the more stable the canoe becomes.

- 11 When loading for paddling into a wind or running rapids, position the packs in front of you but near the centre. Keeping the bow and stern light and buoyant avoids the problem of waves breaking over the bow and stern. This also puts the pivot point just ahead of you, making it possible to control both ends of the canoe.
- 12 For paddling on calm water, the packs can be placed way up in the bow with the canoeist kneeling in the stern an exception to the rule of paddling amidships. In calm water where violent manoeuvres are not necessary, the bow strokes are not needed. This is an extremely comfortable position when travelling solo with a load.

1 When paddling doubles, the first problem to overcome is the tendency of the canoe to veer away from the stern paddler's side. It's the stern paddler's job to correct this by using the J, Canadian or pitch.

When any one of these strokes is applied with extra force on the pry away, the canoe turns towards the stern paddler's side. To turn away from the stern paddler's side, the sweep is used.

- 2 The bow paddler mainly supplies power when travelling a straight course. But for turns and compensating for wind and current there are variations on the stroke that can help the stern paddler to maintain control. The bow J assists the stern in making a turn to the stern paddler's side. The bow paddler shortens his power stroke and does a pry off the gunwale. The advantage of the bow J is that forward speed is not sacrificed when making the turn. The stern does a power stroke with strong emphasis on the steering action.
- 3 The bow diagonal draw assists in the turn away from the stern paddler's side. The stern does a sweep beginning the stroke about 90° out from the body. The bow reaches out at about 45° and draws the paddle directly towards the body, pulling the canoe around into the turn without sacrificing forward momentum. To turn even more sharply, reach out to 90° and pull directly towards the body.
- 4 The pivot point of a canoe is located halfway between the two canoeists. If both paddlers do a draw, the canoe rotates on this point towards the paddling sides. If they do a pry, the canoe rotates away from the paddling sides. Instead of a pry, the bow paddler can do a cross draw.

The pry is a more powerful and quicker stroke but much more difficult. And the price of failure much greater. The wrong angle on the paddle can put you into the water. Especially when the pry is attempted when moving.







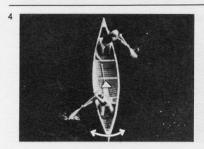






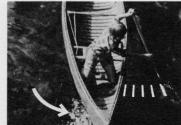












































- dler's side when moving is a lot more difficult than a stationary pivot. Both paddlers reach out and plant their paddles in the water with the power face of the blade at an angle open towards the bow. This is known as a cut. The force of the water on the blade does the turning. As momentum slows, continue the turn with a series of diagonal draws. The stern can do a diagonal draw or a sweep.
- 6 For the pivot turn away from the bow paddler's side, the bow paddler reaches forward and jams the paddle in at an angle (non-power face towards bow) and braces against the gunwale. This is known as the bow-jam.

The stern does a jam. As momentum slows, both paddlers do a series of pries until the turn is completed. The bow paddler has the option of doing the cross-bow draw.

- 7 To sideslip away from the bow paddler's side, the paddlers do opposite strokes the stern a draw, the bow a pry. The two paddlers must work as a team being careful not to outpower each other. If desired, the bow paddler can use the cross bow draw.
- 8 To sideslip towards the bow paddler's side, the stern does a pry, the bow a draw or sculling draw. The sculling draw is more effective and with the weight leaning out on the blade more stable.
- 9 To sideslip away from the bow paddler's side when moving, the stern does a cut, then follows with the sculling draw. The bow does the bow-jam followed by a series of pries. To sideslip towards the bow paddler's side when moving, the stern does the jam followed by a series of pries, the bow a cut followed by the sculling draw.
- 10 The low and high braces provide stability for those difficult moments in waves and rapids. The weight is leaned out on the flat of the blade which is sculled to keep it up on the surface. The paddle becomes an outrigger. In the low brace the palm of the upper hand faces up. In the high brace, the palm faces down.
- 11 In the backwater, the stern paddler draws or pries the canoe in the desired direction while the bow follows with the reverse J, Canadian or pitch. The bow paddler does the steering. In rapids it's just as important to be able to go backwards as it is to go forwards.

- 1 The rapids and falls of the Precambrian Shield are the essence of wilderness, the life and spirit of the land. No craft ever designed was better suited for this vast network of waterways and no art more demanding than the art of paddling a canoe in wind, waves, and rapids. The element of risk diminishes as skill and knowledge grow.
- 2 Many rivers can be travelled by those who prefer the portage to running rapids. But anyone canoeing a river with rapids or falls should be familiar with all the strokes for making safe landings. The approach to the portage can be extremely dangerous, and demands considerable skill in making a controlled landing. Every year canoeists are killed by being swept over falls or into rapids they had no intention of running.
- 3 The ability to perform all the basic strokes and manoeuvres in flat water is essential before attempting them in white water.

The backwater – makes possible a slow descent of the rapids without turning broadside. It buys time to choose a course and position the canoe. If preferred, the backwater sculling can be used at the stern for maximum stability.

The sculling draw – side slips the canoe across the current towards the paddle side.

4 The pry stroke – sideslips the canoe away from the paddle side.

Sideslipping gets you to shore without turning broadside to the current. Comes in handy when you don't like what you see up ahead.

The Indian stroke – maintains control with a constant bracing effect. The paddle remains in the water for stability at all times.

5 A leaning bow draw turn or C stroke is a powerful manoeuvre to pull the canoe out of the mainstream into an eddy. Trust your weight out on the blade and draw in hard towards the bow as you begin the power stroke. Finish with a heavy J.

The cross bow – not only turns the canoe away from the paddle side but also slows the forward momentum of the canoe.

6 The low brace stabilizes the cance through difficult turbulence and nasty cross currents. But the high brace is the stroke for the really big stuff. With the weight leaning out on the blade, the paddle becomes an outrigger and holds the cance upright.



































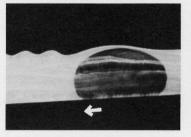




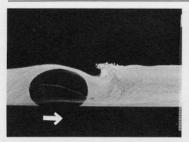






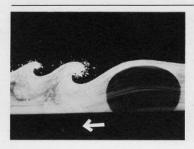














- 7 Difficult rapids are descended slowly. The paddle remains in the water with the weight leaning on the blade for stability and balance. Using pries and draws, the canoe is sideslipped back and forth to line up with the deep water channel.
- 8 Sometimes the deep water is not visible until very close to the brink of a sharp drop. A strong backwater sculling slows the canoe to buy time to choose a course. A back brace stabilizes the canoe, and the pry sideslips the canoe into position above the next deep water channel.
- 9 Above a rapid is a very dangerous place to be, so standing is only attempted if thoroughly familiar with the position. But the improvement of the view beyond the brink is considerable. If the deep-water channel is not obvious, the rapids are surveyed from the safety of the shore.
- 10 Sideslipping or ferrying out of a fast moving current avoids being swept into dangerous rapids that come up suddenly. Side slip the canoe to shore stern first. If the bow makes contact first the stern will be swept away from shore putting the canoe broadside to the current. A very precarious position.

If the eddy turn is used, the bow steps ashore first and holds.

- 11 The ability to read rapids begins with an understanding of what causes a rapid. Estimating where the rocks are and the location of the deep water channel is called "reading the rapids". Above the rapids the slow moving water flows undisturbed. As the drop of the river increases, rocks beneath the surface cause turbulence just downstream. The smooth water flowing over the rock is called a pillow, but these pillows have hard centres.
- 12 With a further acceleration in the current, the turbulence breaks into waves or rollers that curl towards the rock. The wave isn't much of a problem but the rock in front of it sure is. You must be able to read the water quickly as you approach from upstream. You won't see the rock but the curling wave tells you it's there.
- 13 An increase in rate of flow causes a corresponding increase in the size of the wave.

There is now sufficient depth to float the canoe over the rock. The problem is to get through the wave without swamping.

- With a further increase in current, evidence of small rocks disappears while the larger rocks cause proportionately larger waves. If the volume of water is great enough, a souse hole is created - a very difficult obstacle to get through without swamping or rolling. A spray deck can help.
- The deep-water channel between the rocks resembles a V pointing downstream.

A rapid is considered easily navigable if the "V's" are clearly defined and aligned in such a way that the canoe can follow them. A skilled paddler is able to run a rapid in which the "V's" are not aligned by sideslipping or backferrying across the current.

In a larger rapid the fast water of the "V" hitting the slower water downstream, throws up standing waves or haystacks. There is usually a procession of them aligned downstream, like a roller-coaster. Haystacks are a deep-water wave.

The difference between a haystack and a curling wave caused by a rock is quite obvious, especially if the rock is big enough to cause a souse hole.

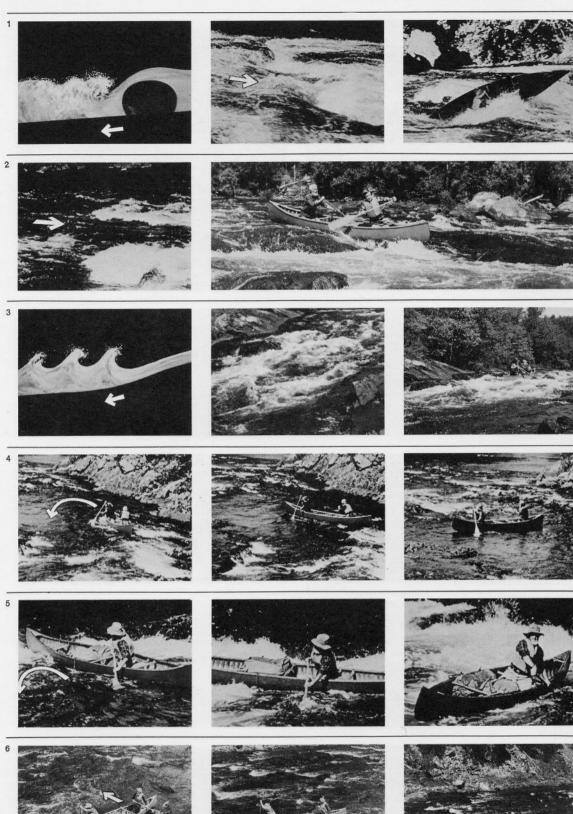
Not all rocks are bad though. You'll find eddies of calm water behind them in the midst of the worst of rapids.

To do an eddy turn or break into the eddy, pass the rock as closely as possible, reach out and plant the paddle in the eddy and draw the bow around into the calm water. It's called eddying out and is one of the most important manoeuvres for running rapids.

- The canoe can be held in the back eddy as long as you want. To do an eddy exit, stick the bow out into the current, hold the stern in the eddy while leaning downstream in a flat brace and allow the surge of the current to do the turning.
- If the portage is on the other side of the river, the canoe can be ferried across the current.

The upstream ferry is the strongest. The canoe is propelled forward against the current and then drawn across the river at a slight angle. The force of the current on the side of the canoe assists in the ferry. Lean the canoe downstream and use the back eddies behind the rocks.

The back ferry is used if a downstream run is to follow. The upstream end of the canoe must be unweighted by moving forward, or it will swing around in the current. Backwater sculling holds the canoe upstream at the proper angle while making the traverse.

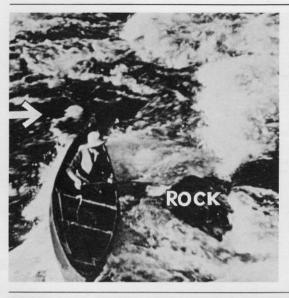


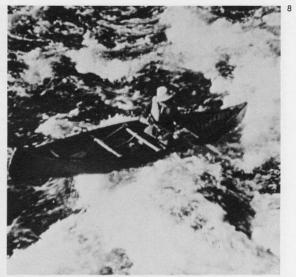


























- 8 Rocks sticking above the surface are easier to avoid but can be dangerous if you broadside onto one. Lean downstream towards the rock to keep the upstream gunwale high or the canoe will swamp and wrap around the rock. The tendency is to shy away from the rock and lean upstream. Keep cool and paddle the canoe off the rock or jump out onto the rock if it's big enough but keep pushing down on the downstream gunwale.
- 9 A swamped canoe in shallow rock-studded rapids is a killer. Stay well upstream and out of the way.

In a six-mile-an-hour current the canoe exerts a pressure of 3000 pounds. Getting smashed against a brick wall by a Volkswagen is a pretty good way to describe how it would feel.

Between the rock and the canoe is **not** a good place to be.

10 The best way to avoid entrapment is to stay away from the cance until you reach deep water at the end of the rapids. Given the choice, swim to shore or into a back eddy. Face downstream on your back and keep your feet up near the surface to avoid entrapment between rocks. The rule "always stay with your boat in case of an upset" isn't necessarily true in rapids.

A 50 foot recovery line is a good idea, but it can be dangerous. Floating rope cuts the risk of entanglement and a belt knife is nice to have when you need it. The rope is stowed away tightly with only a few feet left loose so you can grab the rope and swim to shore. For running rapids, a good life jacket is about as indispensable as a couple of travelling companions to assist in case of injury.

11 One of the dangers of running rapids is that it's habit forming. There is a limit though, as to what is possible in an open canoe. The really big stuff is for covered white water canoes and kayaks, along with crash helmets and rescue crews.

White-water techniques can make a difficult rapid navigable, but the risks can never be completely eliminated. Most canoeing organizations are against canoeing alone. The recreational paddler is well advised to travel in the company of other canoeists. Even though prospectors and trappers often lived to a ripe old age paddling alone, it is unlikely they would have been fooling around in long dangerous rapids.

Most rapids can easily be portaged, but there is something alluring about a difficult rapid and you can't help wondering if you shouldn't try.

The standard white-water grading guide, while by no means perfect because the degree of difficulty varies with changes in water level, is nonetheless of considerable assistance to the wilderness paddler. The rapids are graded during average flow conditions so one must make allowances either way. Some rapids are easier in low water, while others become impossible. In high water a difficult rapid can almost disappear completely.

The modern day voyageur is faced with a bewildering array of canoes from which to choose. The problem is - how to pick

The canvas-covered cedar

A slight rocker to the keel line makes for fast pivot turns in rapids.

- 2 gunwale from bow to stern is desirable. Gunwales that drop too soon allow waves to spill in just behind the bow. A cross section of this canoe reveals adequate tumble home - that's the sloping in of the sides near
- The modern materials such as aluminum, fiberglass and plastics are far superior to wood canvas canoes for strength and lightness but because of the ease of manufacture the market has been flooded with canoes of extremely poor design. And the tougher materials have removed much of the art and beauty of canoeing. Almost indestructible canoes have been substituted for skill and knowledge. The canoe is more than just a means of getting around

White Water I Easy

Occasional rapids characterized by low regular waves. The best passage is easily recognized. Obstructions such as boulders and trees are easy to avoid.

White Water II Medium to difficult Frequent rapids characterized by high, regular waves. Easy to medium drop-offs.

Back-eddies and shear zones are easily negotiated. The best passage is generally easy to recognize.

White Water III Difficult Numerous rapids with high and irregular waves, breakers, rollers and back-eddies. Difficult dropoffs. The upper limit for the open canoe. A spray deck or spray skirt is recommended.

White Water IV Very difficult Long rapids characterized by high and irregular waves, breakers, powerful back-eddies, whirlpools and sharp bends. Drop-offs with powerful rollers and undertow. Best passage often difficult to recognize. Reading the rapids from shore advisable. Not recommended for open canoes. Suitable only for kayaks and covered canoes equipped with spray skirts and floatation devices in the hull. Helmets and life vests are essential.

White Water V Exceedingly difficult Long continuous rapids with very high and irregular waves, breakers, haystacks and powerful rollers which cannot be

avoided. Exceedingly fast currents with powerful whirlpools and boiling back-eddies.

Reading rapids from shore mandatory.

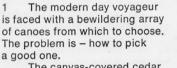
Covered canoes, spray skirts, helmets and floatation devices are essential.

White Water VI On the verge of impossible All white-water V difficulties intensified to the upper limit of present-day skill and equipment.

Passable under ideal conditions only.

All safety equipment compulsory.

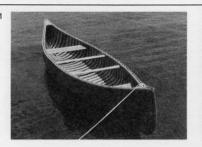
Rescue teams should be in position on shore to render assistance.



canoe, only one generation removed from the small birchbark canoe of the Indian, is still the most aesthetically pleasing canoe of all. Aluminum and fiberglass canoes are the most practical for those who are mainly interested in a no-maintenance functional canoe. Some models with their flat bottoms are very safe but are sluggish and lack in the aesthetic qualities.

Many of the best designs are to be found in the canvas cedar canoes like this prospector model. Five meters (16 feet) is an average length. Ninety-one centimeters (36 inches) is a good width and thirty-five centimeters (13 inches) is the minimum depth for an open canoe.

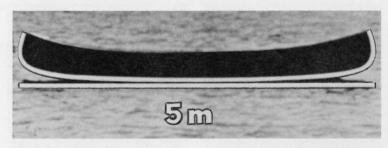
- A continuous curve to the the top – necessary for easy relaxed paddling.
- on water. It is a link with the past.

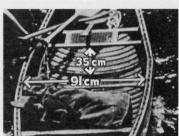








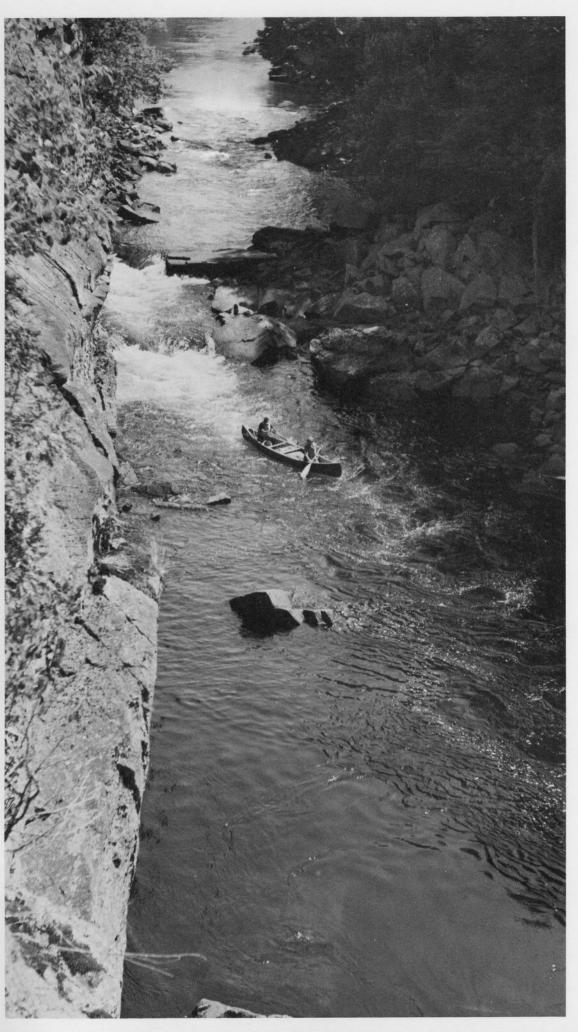












The age of the canoe as a vehicle of trade and commerce is gone forever. Today the canoe has become a means of rediscovering the natural world – and like the Ojibway and Cree before us, there should be no evidence to tell that we have passed this way, other than the imprint of our feet along the portage trail.