

PADDLING A RACING CANOE



A STEP-BY-STEP PROGRESSION

BY: STEVE TRAIN

CONTENTS

	<i>PAGE</i>
<i>INTRODUCTION</i>	<i>2</i>
<i>EQUIPMENT</i>	<i>3</i>
<i>MAKING A KNEE BLOCK</i>	<i>6</i>
<i>KEY PADDLING POSITIONS</i>	<i>7</i>
<i>STEERING THE CANOE</i>	<i>8</i>
<i>A STEP – BY – STEP PROGRESSION</i>	<i>9</i>
<i>RACING - TECHNIQUE</i>	<i>12</i>
<i>RACING- THE START AND FINISH</i>	<i>15</i>
<i>RACING- WASH HANGING</i>	<i>16</i>
<i>EQUIPMENT SUPPLIERS</i>	<i>18</i>

Introduction

The aim of this booklet is to introduce the club coach or new paddler to the requirements of canoe paddling and to help paddlers develop from beginner to elite canoe racer as easily and enjoyably as possible. As in any sport, reaching the highest level takes many years of hard work and dedication. However by following a simple **step-by-step** progression it is possible to quickly achieve a good level of competence from which the paddler can continue to develop and improve.

The introduction to canoe paddling usually starts in some form of team boat. In Canada the War Canoe with 14 paddlers and a helm is popular, in Germany a similar Canoe for 10 paddlers and in Hungary a large Open Canoe for 6 paddlers is used. A more recent development in Great Britain is the Bell Boat a twin hulled craft for up to 8 Adults/12 youngsters and again controlled by a helm. The one thing all these boats have in common is that they provide a **stable base** to learn from; which is essential if paddlers are to develop the technique and skills required to progress to the Racing Canoe. The key to mastering the Racing Canoe, as in most sports, is to start young. The low centre of balance of the young paddler helps them to develop skills quickly and makes learning relatively easy.

Once mastered a Racing Canoe in full flight is a sight to behold. As well as the individual C1 events there are C2 (doubles) and C4 (fours) requiring the additional skills of synchronisation and teamwork. The high kneeling position gives a greater sense of speed than the sitting position of the kayak, and it is this sense of speed combined with the dynamic all body action that makes the sport so exhilarating for the paddler.

EQUIPMENT

BOAT PROGRESSION:

To start canoe paddling it is important to have a stable base from which to learn the technique. Progression is then made through a series of canoes, from team boats to the most extreme which is the racing canoe (C1). The pictures below show an ideal progression:



The Bell Boat:

The catamaran configuration of the Bell Boat makes it an extremely stable base from which to learn the basics of canoe paddling. The coach/helm has the added advantage of being able to instruct a large group and make corrections.

Touring or Stable Junior C2:

A little less stable than the Bell Boat the Touring and Stable Junior C2 provide a good platform to enable development of technique and learn the steering stroke. They can also be used as a singles.



Racing C4:

At 9 metres the racing C4 is the longest of the racing boats and with it's bigger volume still provides a fair degree of stability for the relatively novice paddler particularly if crewed up with more experienced competitors.

Racing C2:

The C2 is less stable than the C4 and having learned the basics youngsters can progress to this level quite quickly.





Stable Racing C1:

Progression from the crew boats can be made, by first going into an older design stable racing C1. Here technique and steering can be further developed.

Junior C1/C2:

For young paddlers a good alternative to the full size stable racing C1 is a scaled down C1 or C2, which is easier for them to control.



Racing C1:

Once paddlers have gone through the progression and developed a higher skill level they will be able to progress to the least stable canoe the Racing C1

TYPES OF PADDLE:

There are three types of paddle construction. They are, all wood, wooden blade with carbon fibre shaft and all carbon fibre. All wood paddles tend to be used for young junior paddlers, as they have a more flexible shaft that helps in preventing too much stress being put on the growing youngsters as they learn. Older juniors and seniors use the other two more rigid constructions, with the wood carbon mix paddle being the most popular. The blade size varies from 50cm long x 19cm wide for a junior paddle up to 55cm long x 22 cm for the stronger senior paddlers. The blade is offset from the shaft very slightly (1-2cm) to assist in getting a better catch/ entry to the water.



PADDLE SIZE:

The size of the paddle depends on the individual, but the standard measurement is as shown. With the paddler standing up straight, and without shoes on, the handle of the paddle should be at eyebrow level. When holding the paddle the top hand grips over the handle, with the bottom hand 3 hand widths up from the blade.



KNEE BLOCK AND FLOORBOARDS:

Paddling in the high kneeling position requires the knee to be well protected. When learning, a simple foam pad can be used. As the paddler becomes more serious they will need to make themselves a knee block. These are highly individual and have to be shaped from polyurethane foam to suit the paddlers' knee. It is important to shape the knee block so that the paddlers weight is spread from the knee and along the shin, rather than directly onto the kneecap. The floorboard usually made from one piece of plywood or wooden slats provides a flat base on which to rest the knee block and is shaped to sit 2-3cm above the bottom of the canoe. Aluminium angle brackets are attached to the floorboard to hold the knee block in the correct position. Experienced paddlers will also have a footrest for the rear foot. However when learning it is better not to have a footrest as it can encourage bad technique.



MAKING A KNEE BLOCK

1. Kneel on top of block and mark around knee with a marker pen. Make sure that knee is central on the block with rear of leg at slight angle away from paddling side i.e. if you paddle on the right side you will kneel on your right knee with your right foot across to left side of the boat.



2. Using a hacksaw blade cut out the bulk of the material. Cut the shape so that knee is comfortable and so that weight is not directly on to the kneecap but spread along the shin.



3. Using rough sandpaper, or a flap wheel attached to an electric drill, sand out and finish off the block.



Note: It will probably be necessary to make slight adjustments to the block after paddling on it the first few times to make it perfectly balanced and comfortable in the canoe.

KEY PADDLING POSITIONS

Paddling Position 1 - Sitting



Paddling Position 2 - Half Sit Half Kneel



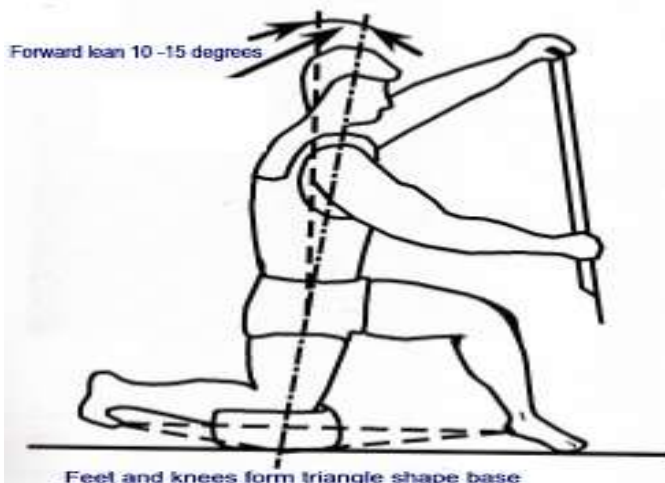
Paddling Position 3 - High Kneel Both Knees



Paddling Position 4 - High Kneel Racing



High Kneeling: Stance at start of stroke



Key elements of starting stance:

- Feet and kneeling knee form triangle base for balance.
- Weight transfers through kneeling knee.
- Keep a light front foot.
- Slight lean forward, never sit back.

STEERING THE CANOE

Paddling on one side creates a problem in that the canoe always turns away from the paddle. Initially the novice will find it difficult to keep the canoe straight and will slow the boat with each stroke, but with practice steering will become a natural flowing part of the stroke.

1. Assuming the paddler is paddling on the right hand side of the canoe moving to the left is simply achieved by use of a sweep stroke.

The path of the paddle during the sweep stroke



1. Start with blade angled away from boat.



2. Blade sweeps out in a wide arc.



3. Blade pulls in towards stern.

To steer to the right, or keep the boat straight is more difficult. When the bottom hand is at a point just in front of the hips, the blade is kept deep and turned through 90 degrees by the top hand as it moves across the body. The action of the top arm moving across the body and turning the blade causes it to lift water slightly, which will steer and correct the course of the boat.



1. At the start of the stroke the blade is close to the boat, with the drive face facing straight back.



2. At the latter part of the stroke, the drive face of the blade remains close but starts to turn out from the boat.



3. By the end of the stroke the drive face of the blade has turned 90 degrees from its start position. The joint action of prying off the side of the boat and lifting against the water keeps the boat straight.



4. At the end of the stroke the blade exits the water moving forwards, to give a smooth transition into the next stroke.

A STEP BY STEP PROGRESSION

STEP 1: BELL BOAT

The Bell Boat provides a very stable base from which to learn the basics of paddling with the single blade. It gives an early introduction to competition at a local level, but they are also raced at national regattas and there is a National Championship event. The progression in the Bell Boat can be broken down into the following stages.

Bell Boat Stage 1

1. Start in the sitting (key position 1).
2. Introduce the concept of the catch, paddle fixes in the water.
3. Stroke is a press down and pull, with the arms been a fixed connection with the paddle.
4. Teach other basic strokes i.e. reverse paddling, draw stroke.

Bell Boat Stage 2

1. Start in the half sit half kneel (key position 2).
2. Develop the feel of the catch moving body weight onto the blade (big support stroke).
3. Practice rotating into the stroke.

Bell Boat Stage 3

1. Using a longer paddle move to high kneel both knees (key position 3).
2. Get a greater feeling of weight on the blade.
3. Lift paddle out before it passes the hip, keep stroke in front of kneeling knee.

Bell Boat Stage 4

1. Move to High Kneel Racing (key position 4).
2. Weight through kneeling knee, light front foot, triangle base (starting stance).
3. Develop catch, rotation and early recovery.
4. Introduce the steering action.

Note: During the Bell Boat stages get the paddlers to paddle on both sides.

How quickly the paddler progresses through the Bell Boat stages will depend on their previous paddling experience and their natural ability. A youngster already paddling kayak could progress to stage 3 or 4 in one session whereas a beginner may take 6 or more sessions.

STEP 2: TOURING OR STABLE JUNIOR C2

Less stable than the Bell Boat but still a good base from which to learn the basics. In either of these canoes paddlers will be paddling as a pair but they will need to be able to steer the boat themselves. Once paddlers have mastered the boat control they can race in Div 9 marathon and in sprint racing development events.

TC2 or SJC2 Stage 1

1. Start both paddlers in the sitting (key position 1).
2. Teach the steering stroke. The paddler in the back is responsible for steering so keep swapping paddlers positions so that they both try steering.
3. Develop steering by paddling a figure of eight course using only forward paddling.

TC2 or SJC2 Stage 2

1. Start in the half sit half kneel (key position 2).
2. Practice steering (as above).
3. Develop the feel of the catch moving body weight onto the blade (big support stroke).

TC2 or SJC2 Stage 3

1. Using a longer paddle move to high kneel both knees (key position 3). The stern paddler can remain in key position 2 and steer while bow paddler moves to key position 3.
2. Get a greater feeling of weight on the blade, one paddler at a time.
3. Lift paddle out before it passes the hip, keep stroke in front of kneeling knee.

TC2 or SJC2 Stage 4

1. Move to High Kneel Racing (key position 4) again keep stern paddler in previous position at first.
2. Weight through kneeling knee, light front foot, triangle base (starting stance).
3. Develop catch, rotation and early recovery.

TC2 or SJC2 Stage 5

1. Try all of the above using the canoe as a single.
2. Develop greater stability by exercises such as standing in the boat, taking shirt off in the boat, passing paddle underneath boat, walking to end of boat turn round and walk back to kneeling position.

Note: As in the Bell Boat get the paddler to develop the skills paddling on both sides.

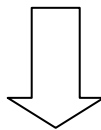
With the young paddler it is important to try and get a very good grounding in technique at this stage. While a paddler may become reasonably proficient within a month it is recommended that they should race in the TC2 or SJC2 for a season before moving on to the next stage.

STEP 3: RACING C4 OR C2

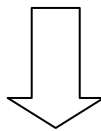
Moving into the C4 or C2 gives a different feel to that of the TC2 or SJC2. The semi circle shape of the hull makes it less stable but a lot faster. The TC2 or SJC2 will have felt quite hard to move through the water whereas the racing boats glide more easily, so initially paddlers need to get used to the different feeling. By this stage the paddler will have a favoured side for paddling and from now on will stick to that side. After a good grounding at the TC2 or SJC2 stage paddlers moving in to the racing C2 should be able to race a marathon in 7/8 doubles and race C2/C4 at regattas in the Junior Canoe class.

From this point the technique will be developed by a series of skill development exercise focusing on different aspects of the stroke. The racing canoe stroke can be broken down into 3 main phases.

CATCH PHASE



DRIVE/POWER PHASE



EXIT/RECOVERY PHASE

RACING - TECHNIQUE

The Catch Phase

The aim of the catch is to lock the blade in the water, to enable the paddler to draw the boat past the paddle. The secret to a good catch is to transfer the paddler's body weight onto the paddle. This lifts the boat higher in the water, thus reducing the wetted surface area, which in turn increases boat speed.



KEY ELEMENTS OF THE CATCH ARE:

1. **Long Reach:** Rotate as far as possible using the hips and shoulders (paddle side hip and shoulder forward, top shoulder back).
2. **Firm Entry:** Hit the water by falling on the blade. Bend from the waist, drop paddle side shoulder and keep arms straight. During this action drop and rotate around centre line of boat and keep side lean to a minimum.
3. **Blade Angle:** around 60 degrees and running parallel with boat.
4. **Weight on Paddle:** Transfer body weight onto paddle keeping all connections fixed.
5. **Bury the Blade:** Lock the blade before draw/pull and press down.

Catch Development Exercises:

1. On land and using a short paddle

- Kneel on 2 knees (key position 3) with paddle at exit/recovery position.
- Let body fall forward keeping knees hips and shoulders in line.
- Bring paddle forward into catch position.
- Let the paddle hit the ground in front of you as if catching the water (do this on grass to avoid damage to paddle).
- Repeat the above while rotating paddle side hip/shoulder into stroke and top shoulder backwards.

2. In a TC2 or Stable C1

- Repeat exercise 1 (above).
- Move to high kneel position, with a very short step (front foot close to knee block), hold bottom hand higher on paddle shaft and repeat exercise 1.

3. In Stable Racing Boat

- Bring front foot back to side of knee block. Paddle dropping weight onto blade.

4. In Stable Racing Boat

- Stand up and hold paddle with bottom hand higher on paddle shaft. Paddle dropping weight onto blade.

5. In Racing Boat

- Repeat exercises 2-4
- Move hands to normal paddling position and repeat.

The Drive/Power Phase

The aim of the drive/power phase is to propel the canoe forward as quickly as possible while minimising any boat movement other than in a forward direction.



KEY ELEMENTS OF THE DRIVE/POWER PHASE ARE:

First 2/3rds of stroke

1. **Pull with Hip:** *Uncoil paddle side hip by pulling it back.*
2. **Pull with Shoulder:** *Uncoil paddle side shoulder by pulling it back.*
3. **Pull Up:** *Use back muscles to pull trunk into upright position. Feeling of growing/vaulting over paddle. This keeps paddle vertical as long as possible. Keep arms straight and fixed.*
4. **Weight on Paddle:** *Keep weight on paddle by pushing down with straight top arm.*

Last 1/3rd of stroke

1. **Hip and Shoulder:** *Paddle side hip and shoulder start to move forward, top arm moves across boat to aid steering.*
2. **Front Foot:** *Push off front foot and feel the boat slide underneath you.*

Drive/Power Phase Development Exercises

1. On land using a short paddle

- With body rotated, arms straight and fixed get paddler to move from high kneeling to standing by vaulting/growing over paddle.
- On a paddling machine or paddling from landing stage repeat vault/growing effect.

2. In a TC2 or Stable C1

- Paddle with arms straight and fixed trying to repeat feeling in exercise 1.
- Repeat above while moving paddle side hip and shoulder forward into the stroke and moving top shoulder backwards to give full rotation.
- Repeat above concentrating on uncoiling rotation during the first 2/3rds of the stroke.
- Repeat above and concentrate on paddle side hip and shoulder moving forward during last 1/3rd of stroke.
- Repeat above and add push from front foot during last 1/3rd of stroke to slide the boat forwards.

3. Repeat exercise 1 & 2 in a Racing boat.

The Recovery/Set Up Phase

The aim of the recovery/set up phase is to get a clean exit of the paddle from the water and to move quickly and efficiently into the next stroke.



KEY ELEMENTS OF THE RECOVERY/SET UP PHASE ARE:

1. **Exit at Hip:** Pull the blade out quickly when lower hand is just in front of hip. The motion is similar to throwing a Frisbee.
2. **Relax:** Breathe in and relax whole body, start to rotate and move forward.
3. **Set up for catch:** Firm muscles, rotate paddle side shoulder and hip forwards, opposite shoulder rotates backwards. Keep paddle blade close to the water (5-10cm) during recovery.
4. **Long reach:** Rotate as far as possible using the hips and shoulders.

Recovery Phase Development Exercises

1. On Land with short paddle

- In high kneeling position practice Frisbee throwing action.
- Repeat above but move paddle side hip/shoulder forwards at same time.
- Repeat on paddling machine or paddling from landing stage.

2. In a TC2 or Stable C1

- Repeat all of the above.
- Try to clip water as paddle comes forward to prevent lifting to high.

3. Repeat exercise 1 & 2 in a Racing boat.

RACING- THE START AND FINISH

THE START:



KEY ELEMENTS OF THE START ARE:

1. **Canoe Direction:** In C1 point front slightly to paddle side to prevent having to steer on first few strokes, in crew boats point straight.
2. **Paddle Position:** Start with paddle touching water in catch position so that canoe moves forward from the first stroke.
3. **Start Procedure:** 2 Full strokes to get the canoe moving, followed by 10 – 12 shorter strokes with strong hip action to accelerate to race speed, gradually extend stroke, by stroke 20 be at full length.

THE FINISH:



KEY ELEMENTS OF THE FINISH ARE:

1. **Start Again:** With 50-100m to go accelerate (use start procedure) the canoe towards the finish line.
2. **Sight the Finish:** Look for the finish line; you should know this before start.
3. **Paddle Through the Line:** Keep accelerating through finish line, don't stop early.
4. **Shoot the Canoe:** In a tight finish it is possible to shoot the canoe forwards over the line to gain an advantage. 1-2 metres before the line put in a very powerful stroke, at the same time throw your body backwards and sit down in canoe, let the canoe slide underneath you, support on paddle and move front leg out of boat to keep balance. (This needs a lot of practice)

Note: If you are not in the canoe when the front crosses the line you will be disqualified!

RACING - WASH HANGING:

During marathon or distance racing it is possible to gain an advantage by riding on the wave or wash coming off the bow or stern of another canoe. Sitting on the wash in the correct position causes your canoe to be lifted and effectively surf on down the wave reducing the effort required to move forward at the same speed as the canoe you are wash hanging. Wash hanging in a canoe particularly in a single C1 requires a lot of skill.

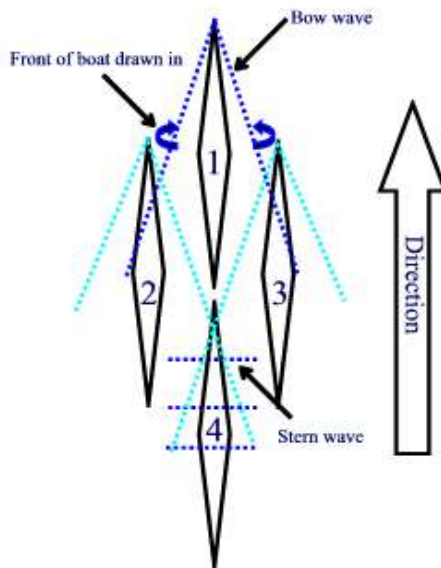
Wash hanging illustration:

Canoe 1 = Left hand paddler

Canoe 2 = Right hand paddler

Canoe 3 = Right hand paddler

Canoe 4 = Left hand paddler



In the illustration above each canoe has advantages and disadvantages to its position depending factors such as wind, river flow, turns and portages:

Canoe 1:

- Has the lead position so is able to dictate the direction and pace, but is expending more energy than the other canoes.
- In a head wind canoe 1 would be protecting canoe 4 from the wind, in a right side wind it would be protecting boat 2 from the wind and in a left side wind it would be protecting boat 3. In a tail wind canoe 1 would lose advantage because canoe 4 would block the wind.
- Paddling upstream on either side of the river canoe 1 would be pushed slightly out in to the flow by the canoe on its inside.
- Turning clockwise and being a left hand paddler canoe 1 would have to sweep round and make a wider turn and would be restricted by canoe 2 on the outside and turning anti-clockwise could draw the front round to make a tighter turn but would again be restricted by canoe 2 but this time on the inside.
- Coming to a portage on the right canoe 1 would be restricted by canoe 3 and coming to a portage on the left would be restricted by canoe 2.

Canoe 2:

- Is in a good position to ride the wash. Being a right hand paddler canoe 2 will only have to paddle straight or slightly sweep to go straight and prevent being drawn in to canoe 1.
- In a head wind canoe 2 would be exposed. In a right side wind canoe 2 would be well protected by canoe 1, but in a left side wind it would be exposed and if strong enough the wind may push the back of the canoe right meaning that canoe 2 would have to start steering cancelling out the gain from the wash. In a tail wind canoe 2 would gain an advantage.
- Paddling upstream on the right side of a river canoe 2 would be exposed to the flow but on the right side of the river would have the inside and the least flow.
- Turning clockwise and being a right hand paddler canoe 2 could draw the front round to make a tighter turn but would be restricted by canoe 1 and 3 on the inside, turning anti-clockwise canoe 2 would have to sweep round and make a wider turn but would have the inside line.
- Coming to a portage on the right canoe 2 would be restricted by canoe 1 and 3, but coming to a portage on the left would have clear water.

Canoe 3:

- Is in a bad position to ride the wash. Being a right hand paddler canoe 3 will have to steer, and slightly slow the canoe, in order to prevent being drawn into canoe 1.
- In a head wind canoe 3 would be exposed. In a left wind canoe 3 would be protected by canoe 1. In a right wind canoe 3 would be exposed but would cope better because the effect of the wind would push the back of the canoe left, meaning having to paddle straight or sweep slightly, which keeps the canoe moving forward. In a tail wind canoe 2 would gain an advantage.
- Paddling upstream on the left side of the river canoe 3 would be exposed to the flow but on the right side of the river would have the inside and least flow.
- Turning clockwise and being a right hand paddler canoe 3 could draw the front and would also have the inside line, but turning anti-clockwise would have to sweep and make a wider turn and also be restricted by canoe 1 and 2 on the outside.
- Coming to a portage on the left side canoe 3 would be restricted by canoe 1 and 2, but coming to a portage on the right side would have clear water.

Canoe 4:

- Is in a good position to ride the wash. As well as riding the stern wash of canoe 1 will canoe 4 will also gain advantage from the bow wash of canoe 2 and 3.
- In a head wind canoe 4 would be protected by canoe 1. In a right side wind canoe 4 would be protected by canoe 3 and in a left side wind by canoe 2. In a tail wind canoe 4 would gain an advantage.
- Paddling upstream on either side of the river canoe 4 would be pushed slightly out in to the flow by the canoe on it's inside.
- Turning clockwise and being a left hand paddler canoe 4 would have to sweep round and make a wider turn and would be restricted by the other canoe 1 in front and canoe 2 on the outside, turning anti-clockwise canoe 4 could draw the front round to make a tighter turn but would be restricted by canoe 2 inside and canoe 1 in front.
- Coming into a portage on the right canoe 4 is restricted by canoe 1 in front and 3 to the side and coming into a portage on the left is restricted by canoe 1 in front and canoe 2 inside.

EQUIPMENT SUPPLIERS

Braca Racing Paddles UK Ltd (Supplier of Hungarian Paddles and Canoes)

28, Clone Road
Twickenham
Middlesex
TW2 6QE

Tel:0790 3496840

Email: braca.uk@btopenworld.com

Kirton Kayaks (Supplier of Plastex Racing Canoes)

Marsh Lane
Crediton
Devon
England
EX17 1ES

Tel: 01363 773295

Email:sales@kirton-kayaks.co.uk

Mainsport Ltd (Supplier of Bell Boats, Canoes, Paddles, Knee Blocks)

Glen Villa
Paynes Lane
Fladbury
Pershore
Worcestershire
WR10 2QH

Tel:01386 861034

Email: info@bellboat.com

For more information on paddling a racing canoe contact:

Steve Train

BCU Canoe Development Officer
Glen Villa
Paynes Lane
Fladbury
Pershore
Worcestershire
WR10 2QH

Tel: 07941 592110

Email: stevetrain@btinternet.com