

# **TROOP 236**

## **CANOEING MERIT BADGE**

1. Before doing other requirements, successfully complete the BSA swimmer test. Jump feetfirst into water over your head in depth, and swim 75 yards or 75 meters in a strong manner using one or more of the following strokes: sidestroke, breaststroke, trudgen, or crawl; then swim 25 yards or 25 meters using an easy, resting backstroke. The 100 yards or 100 meters must be swum continuously and include at least one sharp turn. After completing the swim, rest by floating.
2. Do the following:
  - a. Name and point out the major parts of a canoe and paddle.
  - b. Know canoeing terminology.
  - c. Explain and demonstrate kneeling and sitting positions in a canoe, and the proper use for each position.
  - d. Review and discuss BSA Safety Afloat, and demonstrate the proper fit and use of personal flotation devices (PFD's).
  - e. Demonstrate how to load and secure equipment in a canoe.
3. Do the following with a companion, using a properly equipped canoe:
  - a. Properly carry, launch, and get into the bow of the canoe from the dock or shore (both, if possible).
  - b. Paddle 100 yards on one side only in the bow position using a single-blade paddle. Turn underway and return to shore or dock showing proper form and use of the bow or power stroke, diagonal draw, and quarter sweep. Repeat while paddling on the other side.
  - c. While paddling on one side only in the bow position, demonstrate how to hold water and stop. Show proper form and use of the pushaway, pullover, reverse sweep, and backwater. Repeat while paddling on the other side.
  - d. Change places with your companion while the canoe is afloat.
  - e. Paddle 100 yards on one side only in the stern position. Turn underway and return to shore or dock while maintaining course and giving proper signals to your companion. Show proper form and use of the stern power stroke (the J stroke). Repeat while paddling on the other side.
  - f. While paddling on one side only in the stern position, demonstrate how to hold water and stop. Show proper form and use of the pushaway, pullover, reverse sweep, and backstroke. Repeat while paddling on the other side.
  - g. As bow paddler, make a proper landing and get out of the canoe while following directions from your companion. Repeat from the stern position, giving directions to your companion.
  - h. Store canoe properly.
4. Do the following while on deep water, with a companion, fully dressed and wearing a PFD:
  - a. Jump safely out of the canoe. Get back in without capsizing.
  - b. Capsize the canoe, get back in, secure all loose gear, and paddle the swamped canoe 25 yards. Go overboard and swim, tow, or push the swamped canoe 50 feet.
  - c. Empty the swamped canoe in shallow water.
5. Demonstrate solo canoe handling:
  - a. Launch from the shore or pier (both if possible).
  - b. Using a single-blade paddle and paddling only on one side, demonstrate proper form and use of the forward stroke (J stroke), forward and reverse sweeps, backwater, stop, pullover, pushaway, inside and outside pivots, and sculling. Repeat while paddling on the other side.

- c. While paddling on one side only, paddle a 50 yard course making at least one turn underway and one reverse of direction. Repeat while paddling on the other side.
- d. Make a proper landing at the dock or shore (both if possible). Store canoe properly (with assistance, if needed).
- 6. While canoeing alone on deep water, and wearing a PFD, jump safely out of the canoe. Get back in without capsizing.
- 7. With a companion in your canoe, and while giving instructions to persons who have capsized a canoe in deep water, empty the swamped canoe over your own canoe and assist the persons in reboarding the emptied canoe.
- 8. Discuss:
  - a. General care and maintenance of canoe equipment.
  - b. How to rig a canoe for sailing.
  - c. The difference between river (moving water) canoeing and lake (flat-water) canoeing.

### SAFETY AFLOAT

1. **Qualified supervision.** There must be an adult certified in lifesaving and in the particular skills related to the water craft being used. All adult supervisors must complete Safety Afloat and Safe Swim Defense training, and at least one must be certified in CPR basic life support. There must be at least 2 adults and one adult for every 10 people.
2. **Physical Fitness.** All must have a medical form.
3. **Swimming Ability.** All must be a swimmer. A person who is not a swimmer may ride in a rowboat or motorboat with an adult swimmer or in a canoe with an adult certified as a lifeguard.
4. **Personal Flotation Equipment.** All must wear a U.S. Coast Guard-approved Type II or Type III PFD.
5. **Buddy System.** All must have a buddy, and each boat must have a buddy boat.
6. **Skill Proficiency.** All persons must be trained in craft-handling, safety, and emergency procedures.
7. **Planning.**
  - Float Plan.** Know exactly where the unit will put in, where the unit will pull out, and precisely what course will be followed. All stopover points should be determined in advance.
  - Local Rule.** Determine the state and local laws or regulations. If you must cross private property, obtain written permission.
  - Notification.** File a float plan.
  - Weather.** Check the weather forecast just before setting out. Come ashore immediately if there is rough weather.
  - Contingencies.** Plan for possible emergencies or other circumstances that could force a change in the original plan.
8. **Equipment.** All equipment should be suited to the water conditions and in good repair.
9. **Discipline.** There must be reasonable discipline.

### EQUIPMENT

#### Canoes and Terminology

Starboard----- Right

Port----- Left

Forward----- Front

Aft----- Back

Amidships----- Center

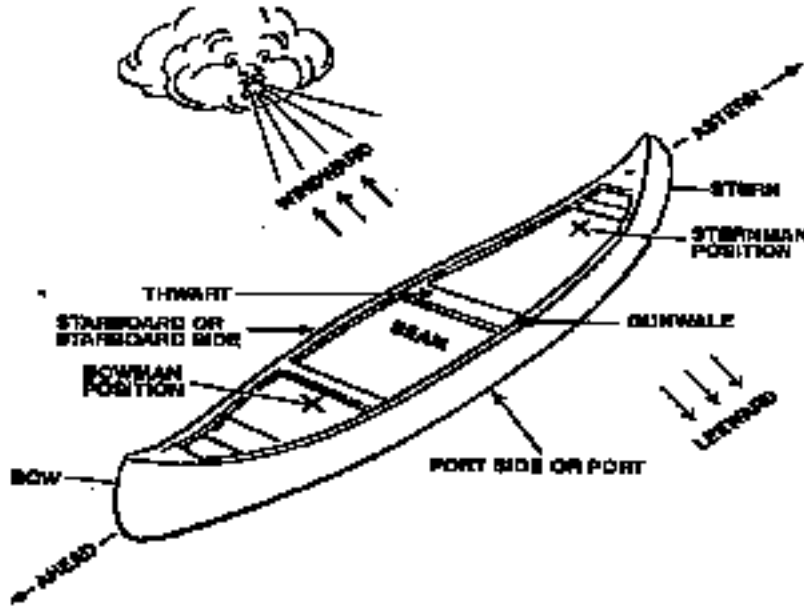
Bow----- Front

Stern----- Back

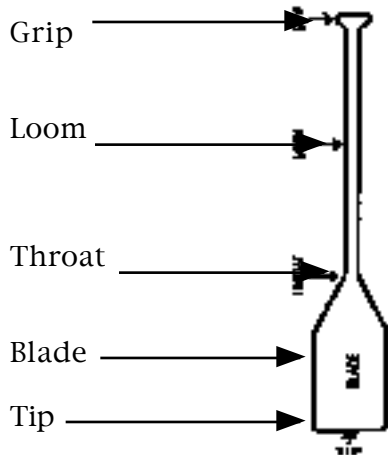
Gunwale (“gunnel”)---- Top edge or outside rim of the canoe.

Thwarts (“thorts”)----- Braces that reach across the top of the canoe.

- Keel----- Reinforcing that runs along the bottom. Gives stability.
- Rib----- Cross ridges that reinforce the canoe.
- Freeboard-----Amount of canoe above the water line. Must be at least 6 inches.
- Windward-----Direction wind is blowing from.
- Leeward----- Direction opposite where wind is blowing.
- Portaging----- Carrying the canoe between areas of water.



**Paddles**



The paddle length should reach between your outstretched arms with the grip in the palm of one hand and the tip in the other or from the tip of your toe to your nose.

**Painter.** A nautical name for the lines secured to the bow and stern of the canoe.

**Kneeling Pads.** Used when paddling in the kneeling position. Can rest in the bottom of the canoe or can be secured to the paddler's legs. Should not soak up water, should float, and should not slip on the bottom of the canoe.

**Yokes.** Used to rest the weight of the canoe on your shoulders for portaging. Can be made using canoe paddles lashed to the seats and thwarts.

**Bailers.** Used to remove water from the canoe. Can use a cut-open plastic bottle or a sponge.

**Waterproof Containers.** Protect equipment from water damage. Commercial or plastic bags.

## LOADING THE CANOE

The canoe should be trim (balanced from end to end and from side to side). This places the center of gravity over the keel. The center of gravity should also be below the gunwales and as near the bottom as possible. Weight that lowers the center of gravity of the craft and adds stability is called ballast. A properly loaded canoe is trim with the gear serving as ballast. Total cargo, including gear and people, should never leave less than 6 inches of freeboard (distance between the surface of the water and the gunwale amidships).

When packing a canoe, tie small items and loose gear such as shoes, camera, and fishing tackle to the canoe. Secure larger items like tenting, bedrolls, and food packets to prevent shifting. Assuming that your canoe is trim before boarding, the heavier member of the team should be in the stern. An exception may be when you are paddling on a windy day. When you are heading into the wind, the bow should be slightly heavier than the stern since the wind will always tend to turn the heavier end of the canoe into the wind (weather vane effect).

## PADDLING POSITIONS

**Sitting** Sitting on the bow and stern seats. More comfortable, but raise the center of gravity and reduce stability. Acceptable on quiet waters, but on windy or rough water, racing or doing complicated maneuvers, and when the canoe is heavily loaded and has minimum freeboard, this should not be used.

**Kneeling** More stable.

Cruising Position You kneel on both knees and rest your buttocks against a thwart or the forward edge of a seat.

Relief Position A variation of the cruising position in which you kneel on one knee. The buttocks rest against the thwart or seat with the paddler kneeling on one knee and extending the other leg forward. The forward foot should always be placed against a rib. Always kneel on the knee that is on the paddling side.

Upright Kneeling Position The paddler kneels on both knees, with the thighs and trunk erect, and faces slightly toward his paddling side. This position has the distinct advantage of allowing the paddler to change his location in the canoe, regardless of thwart or seat location. It's a good relief from other positions, makes paddling easier if there is wind, and allows a more powerful stroke.

High Kneeling or Racing Position The paddler rests on one knee and the opposite foot, with the body erect and facing slightly toward the paddling side, rather than directly forward. The leg on the kneeling side extends diagonally across the canoe with the bottom surface of the paddler's toes, or the bottom of the toe of a soft-soled shoe, gripping the bottom of the canoe. The other leg is extended forward with only a slight bend at the knee. Kneel on the side on which you are paddling. Allows the most powerful stroke.

Indian Style or "Sitting on the Heels" Not very practical for a small paddler in a high-walled aluminum canoe. The paddler kneels on the bottom of the canoe and sits back on the inside of his heels.

## LAUNCHING

To carry the canoe to the water, you and your companion should stand on opposite sides of the canoe, in line with the edge of the breastplates or the first thwart from the bow and stern. Grasp under the breastplate or at the thwart and stand up together, lifting the canoe with your legs and bask and keeping your arms straight. Walk forward until the end of the canoe closest to the water is at the water's edge. Set the canoe down carefully. Decide if the canoe will be launched stern first or bow first. The most stable way to launch and board the canoe from a beach is stern first. If you are going to be launching into a current or into a wind, or if the beach area is arranged such that a turn is difficult after the launch is completed, a bow-first launch may be appropriate.

You and your companion should now stand facing each other across the canoe at the midship position. Grasp the canoe on both sides at the gunwale and lift it off the

ground, using your legs and back and keeping your arms straight. You should then walk sideways until you are standing at the water's edge or in shallow water right at the edge of the beach. At this point, pass the canoe toward the water, hand-over-hand, holding on to the gunwales until the stern of the canoe is supported by the water. Continue to push the canoe out, hand-over-hand, standing in the same position until you and your companion are both holding the breastplate and the canoe is supported on the water. The bow of the canoe should be set gently on the water. Make sure that the canoe is floating free with nothing under it except water. The bowman then remains at the canoe, with his hand on the breastplate or bow, while the sternman fetches any equipment that still needs to be loaded into the canoe.

Before boarding the canoe, the gear should be placed in such a way that it presents no hazard to someone boarding, and will not be broken if someone loses his balance and falls or steps on it accidentally. Paddles should be laid flat in the canoe, not leaning on a thwart. If the canoe is in water shallow enough to stand in, the sternman should walk out beside the canoe to place and secure the remaining equipment. If you're launching into deep water, the canoe can be pulled alongside the shore for loading and boarding.

Be sure the canoe is not bridging (resting on two objects). Look for light under the canoe. Bridging can cause damage to the canoe.

The bowman kneels at the bow of the canoe, with one knee on either side of the bow, and grasps cross-armed across the breastplate. Holding securely in this position will prevent the canoe from tipping to either side when his companion steps in.

The sternman should walk into the water to a spot about even with the bow thwart and then turn and face the bowman. Leaning forward and placing a hand on each gunwale, the sternman steps in with the leg nearest the canoe and places his foot on the keel while keeping his weight momentarily on his leg that remains in the water. When his foot is placed firmly on the keel, he shifts his weight to that foot and to his hands on the gunwales of the canoe, and lifts his other leg into the canoe. As soon as he has both feet in the canoe, he should lower his back end with his head up so that his center of gravity is low in the canoe, and he is facing the bowman holding the canoe. On signal from the bowman, the sternman then backs along the keel of the canoe, stepping over the thwarts as he gets to them, and keeping his weight low with his hands on the gunwales. When the sternman gets to his position, he should kneel, get settled, and check his balance. He then puts his paddle into the water, against the bottom of the lake, with the blade flat against the side of the canoe and the loom straight up. The sternman is now going to brace the canoe so that the bowman can release his hold at the bow and get aboard. To brace the canoe in the stern position, the sternman grasps the throat of the paddle that is in the water against the canoe and hooks his thumb over the gunwale. With his other hand on the grip, he has made a post in the water and secured the canoe to that post.

The bowman releases his hold on the canoe and walks in shallow water to a spot even with his position in the canoe. After stowing his paddle flat in the bottom of the canoe, and out of his way, he grasps the gunwales, just as the sternman did, and steps into the canoe one foot at a time, shifting his weight in the same manner as described for the sternman. After he is in the canoe, the bowman backs up, stepping over the thwarts until he is in a position just aft of midship. This will raise the bow of the canoe off the bottom in the shallows near the edge of the water. With the bowman in this position, and kneeling low, the sternman releases his post hold on the canoe and makes several short reverse strokes to back the canoe away from the beach. Once clear of the beach, the sternman stops paddling and gets settled, retrieves his paddle, and is ready to begin paddling.

Launching from a pier involves some different maneuvers. The procedure is the same until the canoe is in the water. The canoe is turned alongside the pier with one gunwale against the side of the pier. One person then kneels or sits on the pier and holds the gunwale of the canoe steady while the other loads the equipment and

secures it for boarding.

While one person continues to steady the canoe against the side of the pier, the other person sits on the pier with his feet in the canoe. He then shifts his weight to his feet in the canoe, over the keel, with one hand still on the pier while he reaches to the gunwale on the opposite side with his other hand. When his weight is in the canoe, he then moves forward or backward to his paddling position and gets settled. When he is in position, he holds the pier with one or both hands to steady and secure the canoe against the side of the pier while the other paddler boards. The person holding and steadying the canoe is always in charge during the launching and boarding procedure.

### **PADDLING**

Once you have grabbed hold of the water on a paddling stroke, don't let go until the stroke is completed. Minimize water and wind resistance. Make use of your momentum. Avoid wasted effort.

Every paddling stroke has four parts:

1. **Catch** When you first grab hold or make contact with the water.
2. **Pull (or push)** The working part of the stroke that should accomplish your objective---to make progress or do a particular maneuver.
3. **Feather** The twist of the wrist that aligns the blade of the paddle with the surface of the water to reduce resistance..
4. **Recovery** What happens between the time you complete the stroke and when you are ready to start another stroke.

### **Paddling Commands**

The sternman is the captain of the ship and is in charge of the paddling activity (with some exceptions). The first command is **prepare to give way**, which means that both paddlers should assume the position ready to make the catch of the first stroke. The command **give way** means to begin paddling. **Let it run** means to stop paddling and let the canoe coast. In the **run** position, the paddlers lay the paddle across the gunwales with the blade extended out over the water in the feathered position. The command **hold water** means to slow the canoe's momentum or to hold it in position. The **stop** command means exactly what it says. The sternman may also call for specific bow strokes if he needs help in maneuvering the craft. The sternman matches the timing and speed of the bowman's stroke so that the strokes are done at the same time. When the strokes are done together, the canoe is much easier to control and to maneuver, and there is considerably less wasted effort.

**Holding the Paddle** The hand opposite the side on which you are paddling grasps the grip of the paddle. The paddle end should touch the palm of your hand right at the knuckles, with the knuckles in line with the top of the grip. You then simply close your hand so that the fingers are on one side of the grip, the base of your hand is on the opposite side, and your thumb wraps around the side of the grip.

The hand on the paddling side holds the paddle near the throat. Lay the throat of the paddle between your thumb and index finger, with the blade of the paddle turned parallel with a line between the tip of your thumb and the tip of your index finger. Now simply close your hand around the paddle so that your thumb wraps around the throat and your fingers are just below the throat, extending onto the upper part of the blade.

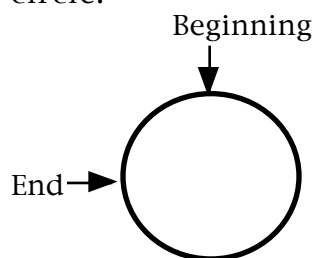
**Bow Stroke** This is a power stroke. Paddling on the port side, the bowman leans slightly forward from the waist and extends his left arm (with hand on the paddle throat) forward and slightly down, keeping the elbow straight. The right hand is on the grip, with fingers facing forward, just in front of the chin. This is the "**prepare to give way**" or "**ready**" position for the "**catch**." The blade is perpendicular to the center line of the canoe, and extended alongside the bow. The catch is at a point as far forward as the bowman can reach comfortably without overbalancing, and close to the side of the canoe.

The "**pull**" is down and back along the side of the canoe, with the right hand pushing forward on the grip while the left arm, with elbow straight, swings down

and back in an arc. The grip hand supplies most of the power by pushing out in a motion like a boxer's jab. The left arm serves primarily as a pivot point and guides the paddle in a straight line along the side of the canoe. To get the most power with the least effort, the stroke should be very close to the canoe with the blade almost straight down in the water. Bending the left elbow during the pull of the stroke lifts the paddle and ends your stroke too early. Remember, once you grab the water, don't let go. The paddle should come out of the water at the end of a full arc, with the left arm straight and fully extended behind the paddler.

At the end of the pull, roll the grip by turning the wrist so that the finger side of the grip is down. This will feather the blade of the paddle for recovery. The recovery arc is to the side, left elbow straight, with the blade tip approximately 4 inches above the water surface. Recover in the feathered position all the way back to the ready point, and then roll the grip hand by turning the wrist so that the paddle blade is again perpendicular to the center line of the canoe. Now you are ready for the next stroke.

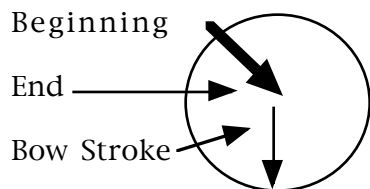
**Quarter Sweep** Turns the bow of the canoe away from the side on which the bowman is paddling. The quarter sweep begins at the same point as the bow stroke. The difference is the blade angle. For the quarter sweep, the blade is turned straight up and down, perpendicular to the surface of the water. This stroke is called a "sweep" because the blade is going to travel along the top of the water, extended out in a wide arc as far as the paddler can reach. The full stroke makes a quarter of a circle.



Begin with a catch, with the hand on the throat of the paddle extended forward as in the bow stroke, pull through the quarter sweep with one side of the blade down in the water and the other side near the surface or slightly out of the water. When the pull is even with your kneeling position, feather as in the bow stroke and recover to your starting point.

When you are under way and have good forward momentum, one quarter sweep in between power strokes will quickly move the bow away from the side on which you are paddling. Two or three quick quarter strokes will easily accomplish a full right-angle turn.

**Diagonal Draw** is used to turn the bow of the canoe toward the side on which the bowman is paddling. Again, the name of the stroke is descriptive of the way it is done. The path of the stroke through the water makes a diagonal line to the side of the canoe, and the effect of the stroke is to draw the water up to and under the canoe.



The catch position for the diagonal draw stroke is at a point exactly in the middle of the path of the quarter sweep stroke. The bowman extends the paddle as far as he can reach without overbalancing in this diagonal direction, with the inside of the blade facing him. The blade catches the water and pulls the water in a diagonal

line straight to the paddler as though he were trying to pull the water into his lap. Just before the paddle makes contact with the side of the canoe, the diagonal pull ends and the paddle is feathered out of the water and recovered back to the catch position for the next diagonal draw.

If the draw is done effectively, the blade can be turned to the bow stroke position at the end of the diagonal pull and the stroke completed with the second half of the bow stroke. One strong diagonal draw that is finished with the pull of the bow stroke will easily turn the canoe to the side on which the bowman is paddling without losing forward momentum. Two or three quick, strong diagonal draw strokes will turn the bow to a full right-angle turn while maintaining forward momentum.

**Changing Sides** An accomplished paddler can paddle with equal ease and strength

on both the port and starboard sides. To balance your strength and endurance, and to develop your skills evenly, you should periodically change paddling sides while on the water. This is done on command from the sternman by continuing the recovery of your stroke over the bow breastplate, with the tip of the blade extended beyond the bow. As you swing the blade tip out over the bow in the feathered position, the hand on the throat slides up the loom of the paddle, and the grip hand releases the grip and reaches down to the throat. As the recovery reaches position for the catch on the opposite side of the canoe, the hands come to the proper positions on the grip and throat of the paddle. This procedure permits the bowman and sternman to maintain their stroke rhythm and pacing.

Do not change paddling sides to steer or control your canoe. Learn to use the strokes for steering and control. If you are switching back and forth to steer and control your course, you are wasting much effort and sacrificing momentum.

**Holding Water and Stopping** On the command from the sternman to “hold water,” the bowman puts the blade of the paddle deep into the water, even with his kneeling position, with the blade at a right angle to the center line of the canoe; he holds this position. The result is maximum water resistance without either pushing or pulling through the water. The easiest way to hold this position is to hook the thumb of the lower hand over the gunwale to lock in position and provide a pivot point. The hand on the grip then holds the blade in position in the water. When done this way, the lower arm does not have to work against the water resistance. If additional “hold” is needed, the grip hand can be pulled back.

A quick stop is accomplished on command from the sternman. On the command “Stop” or “Back paddle,” the bowman reaches back to the end position of the bow stroke, catches and pulls forward quickly and hard to the hold water position, and then continues to exert forward pressure with the paddle blade by pulling back on the grip, with the throat of the paddle locked against the gunwale with the thumb of the lower hand.

**Pushaway** moves the canoe sideways away from the side on which the bowman is paddling. If the bowman does the pushaway while the canoe is stationary, the bow of the canoe will swing away from the side on which the bowman is paddling. If the bowman does the pushaway at the same time as the sternman does the pullover, the canoe will move sideways while maintaining its forward heading.

The catch position for the pushaway begins with the paddle blade deep in the water close against the side of the canoe, even with the kneeling position of the bowman. The blade is turned flat against the side of the canoe, parallel with the center line of the canoe. The “push” of the stroke may be accomplished in either of two ways. With the paddle straight up and down at the side of the canoe, the lower arm holding the throat of the paddle pushes out, with the grip serving as the pivot point. Alternately, from the same catch position, the grip hand can pull back, with the lower arm moving outward. Avoid striking the paddle with the canoe as you do this alternate maneuver.

At the end of your push, the blade will be near the surface of the water and should be feathered from either an “in-the-water” recovery or a recovery above the surface of the water. The in-the-water recovery is more efficient and can be done silently. To recover in the water, you do not break the surface of the water with the blade. You feather the blade in the water at the end of the push by turning the fingers on the grip hand toward the stern and slicing the blade through the water back to the catch position.

**Pullover** is the opposite of the pushaway. In the pullover, you are going to reach out and grab the water and pull it straight to you. This stroke will move the canoe sideways to the side on which you are paddling.

The catch position for the pullover is with the paddle fully extended, straight out from your paddling position. The “pull” of this stroke starts where the “push” ended on the pushaway stroke. With the pulling side of the blade facing you, catch and pull in with the arm on the throat while the grip hand provides a lever point above the

gunwale. The pull ends just before the paddle touches the side of the canoe. At this point, the blade should be deep and just slightly under the canoe. The feather and recovery are done in the water. You feather by turning the fingers on ;your grip hand toward the stern. Recover by pulling back slightly on the grip while pushing out with the arm on the throat of the paddle. Recover straight out from the canoe, slicing through the water to your catch position. End the recovery by turning the grip hand fingers out, and you are ready fro ;your next stroke. Using the gunwale of the canoe for leverage on the recovery will only shorten y;our reach o;out to the side of the canoe and reduce the effectiveness of your stroke.

When the bowman does the pullover at the same time that the sternman does the pushaway, the canoe will move sideways to the side on which the bowman is paddling, while maintaining its forward heading. If the bowman alone does the paddling and uses the pullover, the bow of the canoe will circle to the side on which the bowman is paddling.

Tandem pivots are done with the pushaway and pullover strokes. If both the bowman and sternman do the pushaway, the canoe will pivot clockwise. When both paddlers do the pullover, the canoe pivots with the bow circling toward the side on which the bowman is paddling.

**Reverse Sweep** The reverse sweep is not often used in the bow position, as it tends to move the canoe backward, with the stern making a wide circle away from the side on which the bowman is paddling. The reverse sweep is an important stroke when paddling alone, and is useful when paddling in the stern position. It is done in the same manner regardless of the paddling position.

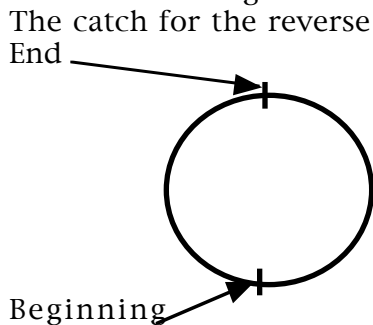
The catch for the reverse sweep in the bow position is at the point where the bow stroke ends. As on all sweep strokes, the blade is turned perpendicular to the surface of the water and sweeps in a wide arc, with one side of the blade down in the water and the other side at the surface. The power part of the reverse sweep travels in a wide arc from the catch position all the way around to the point ahead of the canoe where the bow stroke normally begins. The paddle is then feathered and recovered, following the same arc back to the catch position. During the pull and recovery, the lower elbow should be straight, with the arm on the throat extended as far out to the side as the bowman can reach without overbalancing.

**Backwater** is a reverse stroke that makes the canoe back up. It is done the same way in both the bow and stern positions. The catch position is at the point where the bow stroke ends its pull. The blade angle is identical to that of the bow stroke---perpendicular to the center line of the canoe. Catch the water and push forward with a stroke that is essentially the opposite of the bow stroke. The lower arm serves primarily as a pivot, while the hand on the grip pulls back to give power to the stroke. The backwater stroke ends near the bow at the point where the bow stroke catches. The feather and recovery are the same as for the reverse sweep.

If the bowman does the backwater stroke alone, the canoe will move backward, but with a tendency to turn the stern away from the side on which the bowman is paddling.. When the bowman and sternman backwater at the same time, the canoe will track a straight line in reverse.

**Changing Places** If the canoe is fully loaded with gear in midship or if there is a strong current or wind, go to shore to make your change. Remember that the sternman is in charge. The sternman holds water and directs the bowman to stow his equipment. The bowman stows his paddle flat on the bottom of the canoe where it will not trip anyone or get damaged. The next signal from the sternman is to move back to midship. The bowman then comes up from his kneeling or seated position, keeping his weight low and his hands on the gunwales, and steps backward over the thwarts to the midship position of the canoe. he then sits flat on the bottom of the canoe with his legs extended in front of him.

When the bowman is settled in the midship, the sternman safely stows his paddle, and



gives the command to shift weight. This command should specify in which direction he wants the bowman to shift. On the command to shift, the bowman moves his weight slightly to the port or starboard side of the keel while the sternman shifts his weight in the opposite direction. Now, keeping his weight low and his hands on the gunwales, the sternman rises from his kneeling or seated position and moves forward just to one side of the keel, stepping over the thwarts so that he passes the bowman at midship and proceeds forward to the bow paddling position. When the former sternman is settled in this position, the new sternman gives the command to shift weight back to the center of the canoe. On command, both people move to reposition their weight over the keel. The new bowman then puts his paddle out in the hold water position.

The new sternman then rises from his sitting position midships and, again keeping his weight low with his hands on the gunwales, moves back to the stern paddling position. When he is in position and ready, he gives the appropriate command to the bowman and the canoe is again underway.

### **Stern Strokes Underway**

**J Stroke** is the most important paddling stroke.

The J stroke is a steering stroke; it is basically the same as the bow stroke, but slightly modified to correct the tendency of the canoe to turn away from the paddling side of the sternman.

90 percent of the pull is identical to the bow stroke; it's the last 10 percent of the pull that makes the difference.

At the end of the bow stroke, the grip hand is turned from the knuckles down position to the thumb down position. This rotation of the grip hand turns the blade perpendicular to the surface of the water. The grip is then pulled slightly across in front of the paddler while the hand on the throat pushes out, forcing the blade away from the canoe and pushing the water sideways from the canoe. If the line of the paddle could be observed from directly overhead while paddling on the port side, it would draw a "J" on the surface of the water.

The most common error is to turn the thumb up in order to make the J part of the stroke. This causes a loss of power and drag.

Once you are underway with good forward momentum, it is not necessary to put a J on every stroke. An exaggerated or slightly harder sideways action on two or three J strokes will bring the bow quickly toward the side on which the sternman is paddling. The sternman can, of course, accomplish the turn even more quickly by calling for the quarter sweep or diagonal draw by the bowman, depending on the direction of the turn.

If you are not getting the intended result from the J portion of your stroke, you are most likely failing to turn the blade a full 90 degrees for the J. The second most common error comes from bending the lower arm. Keep that elbow straight.

If the sternman wants to do a sharp turn in the direction away from his paddling side, he does this with a sweep stroke. This is similar to the **quarter sweep** but it makes a full half circle back to the farthest aft point that the sternman can reach without losing his balance. A couple of **sweep strokes** in the stern position will turn the canoe sharply with limited loss of forward momentum.

**Pushaway, pullover, and backwater** are the same as in the bow position. The **holdwater** and **stop** procedures are also essentially the same in the stern as in the bow. For the stop, the sternman reaches as far back behind his position as he can, catches the water sharply, and pushes forward with a strong motion to the hold water position.

### **LANDING**

Simply the launching procedure in reverse.

### **OVERBOARD MANEUVERS**

The absolute rule in going overboard is that you never lose contact with the canoe.

To reenter, get on opposite sides of the canoe. With both hands on the gunwale, position yourselves so that one person is just forward of midship and the other is just

aft of midship. On signal, making sure you move at the same time, both of you should kick sharply in the water (use a scissor kick or whatever works for you) to pull yourself up on the gunwale to the point where your arms are straight down and the gunwale is just below your waist. At this point, it's like standing with your hands on a table, looking at your friend who is across from you and slightly to one side. If one of you is unable to pull up, or slips off, or falls backward, the other should immediately drop back into the water to prevent the canoe from capsizing. You are able to pull your weight up on one side of the canoe only because your companion is doing the same on the other side, thus keeping the canoe balanced.

If both of you have made it to this position up on the gunwale, the rest is easy.

Simply lean into the canoe and roll over so that you fall in tail first, landing on the bottom of the canoe. If you have done this correctly, you end up sitting on the keel with your knees bent over the gunwale and your feet hanging outside the canoe over the water. You can now bring your feet in and return to your paddling position.

Remember, be conscious of the movement of your companion. The best approach is for one man to give commands while the other man responds.

If one of you is unable to pull up on the gunwale for reentry, you can crawl in one at a time. One man stays in the water, hanging on the gunwale, while the person that is having difficulty crawls over the side by whatever means. The man in the water can pull down or push up slightly on the gunwale to assist his companion. After the less agile man is in the canoe, he helps his companion by leaning to the side away from his companion to balance the canoe while reentry is completed. Sculling with the paddle can also help to balance the canoe.

### **Capsize Procedures**

Without losing contact with the canoe, allow it to right itself. Position yourselves on opposite sides of the canoe facing each other at midship.

Even though the canoe is capsized, you need to get back in and paddle safely to shore. You and your companion can move at the same time to slide over the side of the canoe and roll in, bottom first. A capsized canoe will roll over even more easily than one floating. You may find it easier to reenter the canoe one at a time with the other person steadying the canoe. The position for tandem-paddling a capsized canoe is for the paddlers to sit facing each other, with their feet near the center of the canoe and their backs facing each other, with their feet near the center of the canoe and their backs against the paddling thwarts or seats.

**Emptying a Capsized Canoe** When you are near the shore, remove the gear, and one person should carry it to shore. Standing in approximately waist deep water, you and your companion stand on the same side of the capsized canoe, roll it over on top of you by pushing down on the near gunwale and pulling the far gunwale up over you. You will then be squatting slightly in the air pocket under the canoe. With hands on the gunwales and thwart or seat resting on your shoulders, you and your companion can stand up on signal, lifting the canoe clear of the water. If you will lean it slightly as you stand to break the airlock, it will be easier to lift. After the water has drained from the canoe, raise one side high by extending one arm upward and let the canoe roll gently over onto its bottom on top of the water beside you. (Before you begin to roll the canoe, agree with your companion on which way the canoe will roll.)

**Canoe Rescues** Come alongside the capsized canoe on the side away from the persons in the water. Hold the capsized canoe and direct the Scouts in the water to hold onto your canoe. Swing the capsized canoe at a right angle to yours and turn it bottom up. Then lift up the canoe end and set it on the gunwale of your canoe. Ease the other canoe across the gunwales of your canoe until it is balanced. This will drain the water. Roll the capsized canoe over on the gunwales of your canoe in preparation for putting it safely back into the water. Ease the other canoe back into the water, sliding it carefully off the gunwales of your canoe. Hold the other canoe by its gunwales alongside yours as the rescued "victims" climb back in, one at a time.

**Solo Deep Water Reentry** Sit on the bottom, and paddle for shore. If the canoe is

upright, move as quickly as possible to get hold of the gunwale.

**Arm Across Reentry** Begin near the center thwart of the canoe. Place one hand on the near gunwale and the other as far across to the other side as possible. Kick hard bringing your weight across on the arm near the far side of the canoe. With the near gunwale against your upper thigh, lay your weight across the canoe. With one more hard dolphin kick, roll so that your hips fall into the canoe. Your tail should land near the keel line. With legs still out, hold your position long enough to assure that you do not overbalance. Then bring in your legs and resume your paddling position.

**Flopper Reentry from Deep Water** Begin with the gunwale under your arms and hands flat on the bottom of the canoe at the edge of the bilge. Straighten your arms so the canoe leans toward you. Duck your head, kick hard, bend one arm and drop your shoulder, and prepare to roll your hips over the gunwale. Tuck your feet and legs and roll over the gunwale with your head and shoulder making first contact with the canoe bottom. Land flat on your back with your spine over the keel, head extending under the thwart and feet and knees high.

## **SOLO CANOEING**

**Kneeling Position** just aft of the center thwart. The most stable position is both knees down.

**Paddling** For most solo canoeing, you will need to use only your basic J stroke. To turn the canoe away from the side you're paddling on, do a hard power stroke without the J action at the end of the stroke. If you want to turn sharply away from the side you're paddling on, a full sweep from your catch position, all the way around and back behind you, will accomplish your turn. You can make a gradual turn toward your paddling side by emphasizing the J part of the stroke on three or four strokes. To turn sharply toward your paddling side, do a hard J, bringing the end of your stroke all the way up beside you so that you are almost doing a reverse sweep. This will of course, slow your forward momentum considerably.

**Holding Water and Stopping** Do this like a reverse diagonal draw.

**Stationary Maneuvers** The backwater, pullover, and pushaway strokes are done in solo canoeing just as they are when paddling with a companion.

**Sculling** is an alternative to the pullover and pushaway strokes. The movement is usually slower than with the pullover or pushaway strokes, but it also requires less effort, and can be done silently and in small space. The action of the blade in the water is like the blade of a knife when you are spreading butter on a slice of bread. The blade makes a "Z" or figure eight pattern in the water, moving back and forth in a path that is about 2 feet wide and parallel to the keel.

## **WHITEWATER CANOEING**

The primary difference between flatwater and moving-water canoeing involves the action of the water on the canoe. Remember that in flatwater canoeing you are reaching with the paddle to grab the water and pull yourself along. When canoeing on moving water, your forward momentum comes from the movement of the water--the water is actually pushing you along. For this reason, the paddle is not used for pulling yourself along, but instead is used almost exclusively for directing the course of the canoe and slowing forward momentum.