29 CANOE, KAYAK AND RAFT EXPEDITIONS

Andy Watt

Water journeys can be expeditions, run by individuals, usually with some experience, who plan and carry out their own trip, or they can be commercial trips, where private companies take clients down white-water rivers (see page 338). Expeditions can be grouped into the following types.

Flat water

These expeditions are undertaken for pleasure or scientific purposes, on slow-flowing

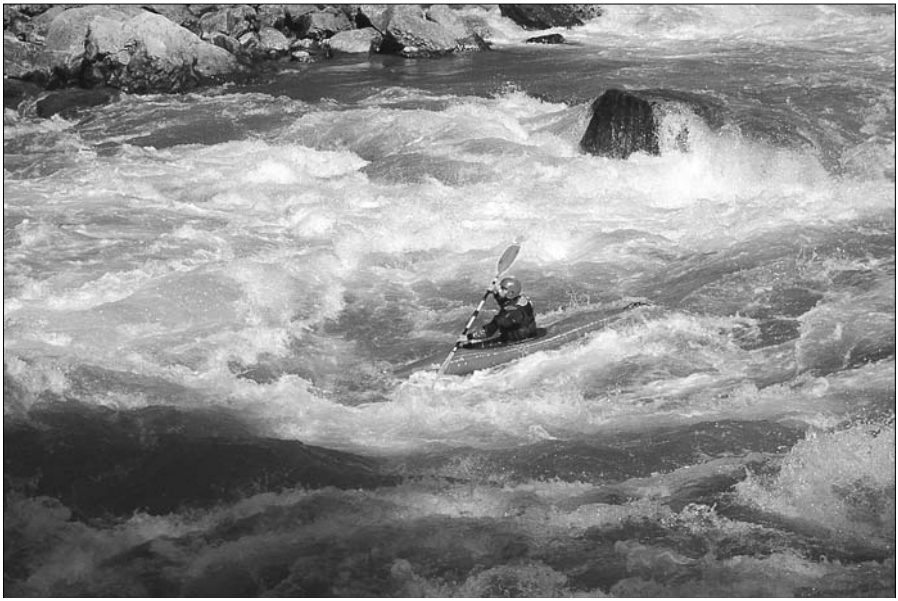

Figure 29.1 *Kayaker tackling white water (A. Watt)*

rivers or lakes, in any craft. The terrain they pass through, including jungle or arid areas (see Chapters 23 and 24), is often as important as the water they travel on.

River

These expeditions are undertaken by white-water kayakers to whom the terrain is often less important than the rapids they seek. With the growth in popularity of destinations like Nepal and Chile, increasing numbers of paddlers with little expedition or medical experience are travelling to remote, often mountainous, areas. The rivers are bigger, significantly faster and more powerful, they show marked seasonal variation and there is less information available on them compared with rivers at home.

Sea canoeing

Sea paddlers are often experienced in multi-day trips and in eliciting tidal and local weather information.

PREPARATION

As you will be paddling on long, multi-day trips, which are more physically and mentally demanding than day trips at home, you should be fit. Cardiovascular fitness – running and swimming – is better than weight training, but time in a boat (especially distance paddling) is best. Ensure that you practise your Eskimo roll in agitated water. In addition it is important that all expedition members should review resuscitation procedures and management of a near-drowned casualty.

Medical kit

Space is limited, especially in a kayak, so a lot of thought has to go into selecting items for your medical kit (see Chapter 3). A smaller spare medical kit should always be carried in another boat.

MEDICAL PROBLEMS SPECIFIC TO WATER-BASED EXPEDITIONS

Water quality

Iodine (see Chapter 11) is the preferred option for sterilising water among experienced paddlers, with each carrying their own personal supply. Rafts may have space for filters or extra fuel to boil water. The water in lakes or rivers in developing countries should always be considered unclean, but the concentration of bugs is usually low enough for your stomach acid to deal with small volumes of water (for example, from splashes). In countries with seasonal monsoons the rivers are most dirty immediately after the rains start, when the land gets "flushed".

TABLE 29.1 **ESSENTIAL MEDICAL ITEMS FOR WATER-BASED EXPEDITIONS**

Plastic dropper bottle for iodine solution (1 per paddler)
1 large bandage (+ cut to size required)
Paracetamol
Strong painkillers
Ziplock plastic bags and waterproof container/dry bags
Antibiotic drops for ears, cotton wool + Vaseline
Hand cream, lip salve
Calamine lotion for sunburn
Sea-sickness tablets (e.g. cinnarizine 15mg)
Tape, e.g. Elastoplast; better still duct tape
Antibiotics

Dehydration

Paradoxically, despite being surrounded by water, dehydration can be a problem, especially for raft groups in hot countries or sea kayakers in semi-tropical areas, who may not realise that water intake in the sun should be about 3–4 litres a day. The early signs of dehydration are vague symptoms such as headache, light-headedness, lethargy and just feeling unwell. These are difficult to recognise unless you are on the lookout for them.

Diarrhoea

If a paddler gets diarrhoea the group should tighten up its hygiene practices. Treatment for simple diarrhoea for the first few days is fluid replacement, not medicines. If the diarrhoea is accompanied by abdominal pain, blood or fever, or persists for more than 2–3 days, antibiotics, such as ciprofloxacin, may be considered (see Chapter 18). Paddlers with simple diarrhoea on harder rivers may consider antibiotics before 2–3 days have passed.

Accidents and bouyancy aids

The commonest threat to trips is accidents caused by foolishness or lack of foresight (campfire burns, twisted ankles due to inadequate footwear and so on) rather than natural incidents. The most important item of equipment on the water is a lifejacket/buoyancy aid, even for flat-water sections, where raft passengers especially can become careless. If for any reason you end up in the water, your chances of near-drowning are much higher if you aren't wearing a lifejacket/buoyancy aid.

Near-drowning

This term is more accurate than drowned (someone who is dead). Near-drowning ranges from a bad swim with a gasping but conscious victim to prolonged immersion with loss of consciousness. These stages can be with water inhalation or without (dry drowning, caused by the larynx or voice box closing in spasm and preventing both air and water getting to the lungs).

If the patient has suffered prolonged immersion, for example at sea, they should be lifted out horizontally (to stop the blood pressure dropping severely), and gently if they are hypothermic. (Rough handling can induce fatal rhythms in a hypothermic heart.)

Head injuries may be a cause of unconsciousness and are often accompanied by neck injuries. Removal of helmets should be done by two people, with one responsible for holding the head stable. If a neck injury is suspected, remember that establishing the airway means lifting the chin, not bending the neck. Clearly, if you are on your own on a slippery bank such advice is hard to follow. If there is only a low suspicion of neck injury, then absent breathing demands more urgent attention. The lungs cannot be emptied of water; besides, manoeuvres to do this precipitate vomiting.

TABLE 29.2 MANAGEMENT OF A "NEAR-DROWNED" BREATHING CASUALTY

- Place in the recovery position (note – likely to vomit)
- Keep warm, move as little as possible
- Start regular observations – respiratory + pulse rate, temperature, urine output (see Chapter 12)
- If water is dirty give antibiotics – amoxycillin or erythromycin, and metronidazole

Severe respiratory illness ("secondary drowning") is heralded by breathlessness and the patient looks very unwell. It occurs 12–24 hours after a near-drowning and is more likely if the near-drowning was severe, for example with unconsciousness, or if "crackles" can be heard when you put your ear to the patient's chest. These patients should be evacuated to a facility that has oxygen and artificial ventilation (usually only available in cities). In the wilderness, there is no difference in the management of near-drowning in salt or fresh water.

Hypothermia

Significant hypothermia can occur in water temperatures below 20°C, which covers

most of the waters visited by expeditions. Water can be a big drain on the body's resources because it removes heat 25 times faster than the air trapped by our clothes. Hypothermia can be a hidden danger. Experienced paddlers will notice the subtle early signs of hypothermia in group members, especially those who have been rolling a lot or have had a swim. These include shivering, mild confusion and muscle incoordination.

Signs and symptoms of hypothermia

- Feeling cold
- Shivering – this can stop as temperature falls below 33°C
- Muscles are stiff, weak and less responsive – can lead to capsizes, failure to roll, inability to climb on to the bank
- Mental disorientation, inappropriate behaviour and slurred speech. Accidents then become inevitable
- Armpit feels "marble cold".

The group should stop and get the person warmed up. If it is the end of the day and you are close to your destination, with no ideal campsite, the temptation is to press on. But remember that the hypothermic person (and probably others in the group) will be markedly less competent at paddling.

Management of hypothermia

- Get the patient into dry clothes (sea kayaks especially should have these accessible) and put on a hat.
- Place the patient in a sleeping bag (alone).
- Insulate the patient from ground.
- Rewarm the patient.
- Give small, frequent amounts of warm fluids.
- Make the patient rest for a day after recovery.

Remember that the skin warms up before the inner (core) temperature, so early on the person feels inappropriately better. Allow plenty of time for rewarming. Seriously hypothermic patients should be handled carefully, as fatal heart rhythms can be precipitated. Unfortunately, in remote areas, not much more can be done to rewarm them beyond the measures outlined above.

Note: putting an extra person in the sleeping bag may not be as beneficial as was previously thought.

Resuscitation of a near-drowned paddler

The management of an unconscious, non-breathing casualty, pulled out of the water, is:

A Airway
B Breathing, start expired air resuscitation (EAR) if breathing is absent
C Circulation – start external cardiac compression (ECC) if carotid pulse is absent.

If there is no immediate recovery, and hypothermia is not an issue, then there is a limited period within which recovery is possible. This period is affected by factors such as the efficiency of your resuscitation (one reason to practise before you go) and how long the heart has stopped. Even very efficient cardiopulmonary resuscitation (CPR) in optimum conditions can only keep a brain going for approximately 2 hours. If there has been no sign of life (pulse or breathing) after this period in a non-hypothermic casualty who has drowned without other medical conditions, then you may have done all that is possible for the casualty. If you are within 2 hours of a hospital, you may think of evacuation, but remember that your CPR will be much less efficient, if not impossible.

Whether successful or not, resuscitation can be followed by further problems – attention has to turn to management of a tired, cold, shocked group and the prevention of further accidents.

Hypothermia and immersion

If the victim is in very cold water, severe hypothermia can modify the advice about drowning. Hypothermia occurs after at least half an hour of immersion in very cold water.

Severe hypothermia can mimic death in that the body is cold, stiff, with white/blue skin, dilated pupils and barely detectable breathing or pulses, so your examination should be very thorough (for example, you should feel for a carotid pulse for 1 minute). If there is a chance that the victim is still alive, you should start EAR and rewarming (but not ECC – see below). If there is no recovery, the advice is that you cannot pronounce the patient dead (i.e. there is no pulse or breathing) until they have been rewarmed; theoretically, this means to 36°C, which may take 6 hours or more. In other words, they are not dead until they are warm and dead.

There are cases of hypothermia victims surviving prolonged immersion with no breathing (up to an hour) in very cold water, but these have been children who were subsequently taken to a high-tech medical facility

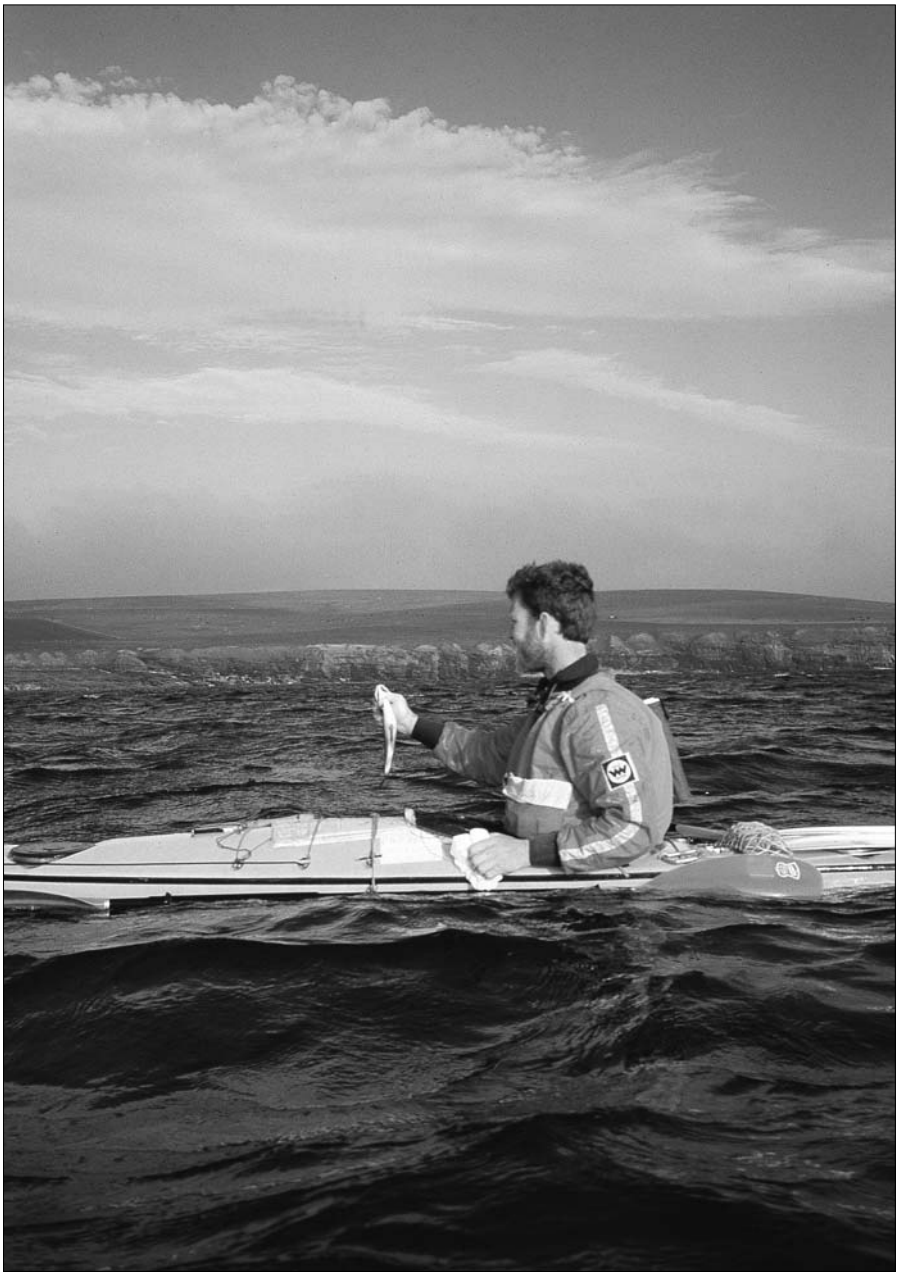

Figure 29.2 *Kayaking on open sea water (G. Bruce)*

The heart is very unstable in severe hypothermia, and thus can be easily jolted into a fatal rhythm. This means that:

- ECC should probably not be started, as it may cause fatal rhythms in a heart that is beating. The heart has a slightly better chance of slowly improving by itself if treatment is limited to rewarming and EAR.
- The casualty should be moved only if it is strictly necessary, and then as carefully as possible.

Shoulder dislocation

Shoulder dislocations are probably the most serious injury that canoeists will experience. Intermediate kayakers, unfamiliar with the power of big water rivers, should be especially careful. Your future in white-water canoeing is limited if you have a dislocation, as subsequent dislocations happen a lot more easily. Dislocations occur when the arm is extended higher than the shoulder.

Good paddling technique prevents shoulder dislocation – keep arms below the level of your shoulders. Think of a box between the chin and spraydeck and "Keep your hands in the box".

In the wilderness, it is reasonable for you to try to put back ("reduce") a dislocated shoulder. The technique is simple, you are unlikely to cause more damage than has already been done, the healing process can start sooner, there is likely to be less damage to the shoulder in the long term, and the patient will be more comfortable during the evacuation. However, it is the patient's decision as to whether reduction is attempted. The diagnosis is usually obvious and patients realise the shoulder is "out": the elbow will lie away from their side and they cannot move their arm. From the front, the shoulder looks abnormally square compared with the other side and the head of the upper arm bone (humerus) can usually be felt in front of the "cup" of the joint (Figure 29.3).

Action must be swift. Relocation can most easily be done in the first few minutes, but becomes progressively more difficult during the next 2 hours as muscle spasm sets in.

Management of a dislocated shoulder

- Give your strongest painkiller and muscle relaxant (e.g. 5mg diazepam) to suck).
- Gently remove the buoyancy aid and paddle jacket.
- Carefully examine the arm and shoulder.
- Check and record – pulse, finger movement, numb "herald patch" and hand sensation.

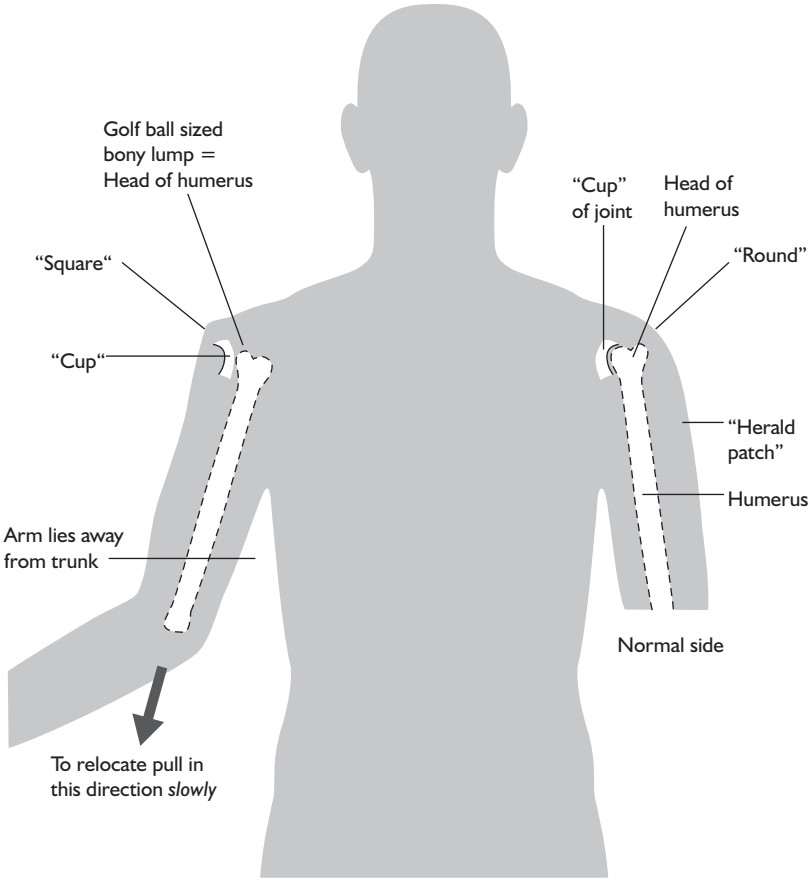

Figure 29.3 *Shoulder dislocation – diagnosis (A. Watt)*

The principle of good reduction is a *very slow continuous pull* to tease out the muscle spasm. When the humeral head comes to the edge of the cup of the joint it will suddenly "clunk" into place. If you pull too hard or too sharply, muscle spasm will worsen and grip the humeral head more firmly outside the cup.

There are several techniques, but the two easiest ones are shown in Figure 29.4:

1. Lie the victim face down on a flat boulder, rock ledge or similar with a table-like edge, so that their arm hangs down freely. Attach a helmet or bucket to their wrist. Add a weight (e.g. small stones) of around 2kg (3kg for a large patient) and very slowly increase this to double; if the patient has pain then decrease the weight.

Leave the patient alone; gravity does the work as the patient's muscles relax. After 5–15 minutes the patient should feel a "clunk" which will indicate relocation.

2. Lie the patient on their back and sit with your legs extended, facing the head, holding the wrist between your thighs. If the right shoulder is dislocated, place the arch of your right foot (not the toes) in the armpit and press against the chest wall. Keeping your arms straight (less tiring), very, very slowly lean back. (Do not press too hard with your foot as it is resting close to nerves in the armpit.) After 5–10 minutes a clunk will indicate relocation.

After treatment, whether or not relocated:

- Check and record the wrist pulse, and "herald patch" again;
- Strap the arm to the front of the chest with the hand level with the other shoulder (see Chapter 13, page 149);
- Immobilise the shoulder until the patient consults a good physiotherapist, so that long-term damage can be minimised.

MISCELLANEOUS MEDICAL PROBLEMS IN PADDLERS

Cuts

Cuts, especially on the legs, may not heal until the trip is finished. Even the smallest of cuts can get infected, so at the end of every day wash the cut, apply iodine or povidone and a small plaster. So-called waterproof dressings usually are not (although some people use Opsite successfully). My preferred option is the ubiquitous duct tape. It is not stretchy, but it does stick well and most canoeists carry some for boat repair.

If you have the training, the closure of cuts gives better healing, reduces the risk of infection and makes the cut waterproof after a day. Closure can be done with sutures or medical "superglue". On water-based trips you may find that Steri-strips do not stick well, even with the addition of sticky tincture of benzoin to the skin.

Hand blisters

These are fairly common on multiday trips, even among experienced paddlers who may not have paddled recently. If you feel a faint, early soreness it is worth trying some tape or Moleskin strapped over the friction point before a blister forms. Blisters usually de-roof with further paddling; then treat as you would a simple cut.

Burns

Wood fires are common on river trips and burn injuries are frequent. If the burn is severe enough to require a silver sulphadiazine dressing, then keeping it dry is important. The dressing probably does not need changing unless it gets drenched (see Chapter 13).

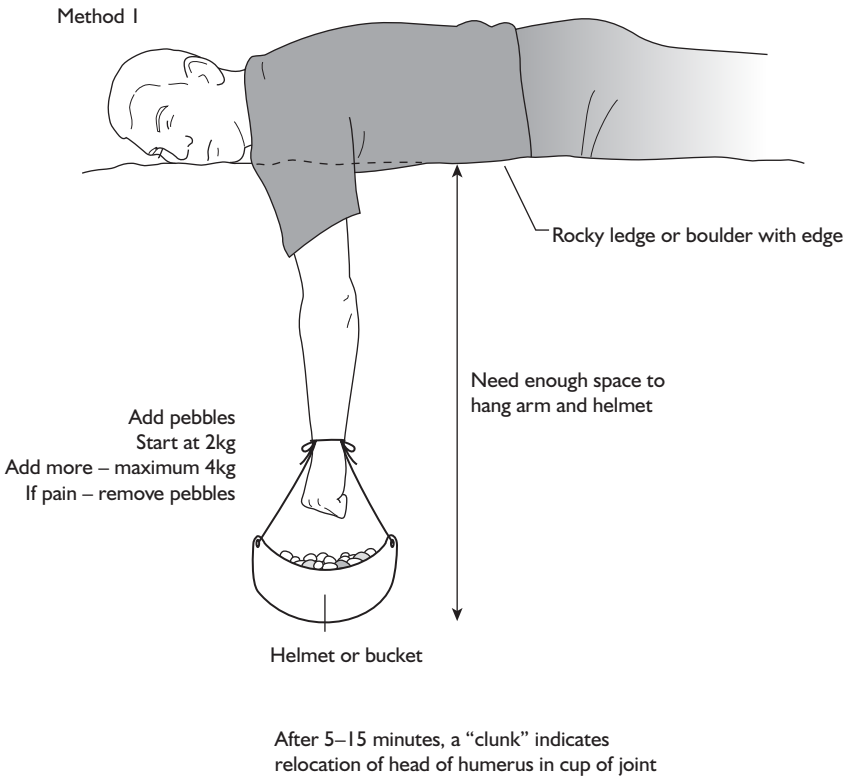

Figure 29.4 *Relocation techniques for a dislocated shoulder*

Piles (haemorrhoids)

These are common in rafters, kayakers and mountaineers but no one knows why. Symptoms are pain, bright red bleeding on defecation or a lump sticking out of the anus. Treat with careful washing and application of a local anaesthetic, for example, Xyloproct ointment. If severe, lie patient flat, legs and buttocks slightly elevated and a cold pack in place. Paradoxically, both diarrhoea and constipation can make haemorrhoids worse; a high fluid intake is useful in either case. If you do suffer from them, consider getting them treated before you go on an expedition.

Colds ears and sore throats

These are fairly common on multiday trips. Treatment is simple, with paracetamol and plenty of fluids. If the infection moves down to your chest, purulent (green) sputum can result. Anything worse than this should probably be treated with antibiotics (amoxycillin or erythromycin), especially if the patient has a temperature.

Kayakers sometimes complain of "water in the ear", often when they have a cold and have been rolling. The sensation is in fact not caused by water in the external ear but by an imbalance of pressure in the inner ear caused by a blockage of the very narrow tube that joins the inner ear to the throat (eustachian tube). This pressure may be eased by exhaling against a closed mouth and pinched nose, or by swallowing. Inhaling steam may help, or try decongestants like Actifed. You should wait until any colds have cleared before going back to Eskimo rolls, and it can be painful during the descent of a plane flight.

External ear infections

External ear infections are common in warm, moist areas like the tropics. Encourage expedition members carefully to wash and dry the ear, then use Otosporin eardrops (two drops three times a day). On the water, you may want to try an earplug of cotton wool in Vaseline. If you already suffer from "surfer's ear" (exostoses, or bony lumps, caused by years of exposure to cold water), you should discuss a plan for its treatment (including customised earplugs) with an ENT specialist before you go.

Tenosynovitis (tendonitis)

This is an inflammation of the synovium, the sheath surrounding muscle tendons, usually at the wrist. If you are already suffering from this before you leave, consider changing to paddle feather or use cranked shafts. Those at risk are people who haven't spent much time paddling prior to the trip. There will be moderate-to-severe pain on slight wrist movement, sometimes with palpable "creaking". One point is very tender to touch, usually on the thumb side of the back of the wrist. Point tenderness can distinguish tenosynovitis from other wrist pains. This is an overuse injury and the only cure is complete rest, ideally in a splint. If you insist on paddling

then try a wrist bandage (of neoprene, for example) and consider an anti-inflammatory drug like ibuprofen.

Back and muscle problems

Stiff bodies and knotted muscles, especially in your neck or between the shoulder blades, are common on multiday trips and when moving heavy craft. Doing warm-up stretches before and after paddling is a routine worth following, and so is getting someone firmly to massage the "knots". Sea paddlers can get leg strains through constantly sitting in the same position. Back trouble is common in paddlers, especially as the kayaking posture flexes the lower, lumbar spine against its natural curve. If you suffer from recurrent back trouble the hazards of becoming disabled in a remote area should stimulate you to remember proper lifting techniques, to review flexibility exercises with a physiotherapist before you go, to fit a proper backrest, and to consider lifting aids like straps or even portable trolleys.

Sea paddling

In the tropics be aware of the glare of the sun. Take sunglasses, spare hats and plenty of high-factor sun cream. Dry skin can be a problem, especially for hands that are constantly getting wet (through removal of natural oils), so carry something like Neutrogena hand-cream. In cold climates lips especially can suffer from chapping; a cap or hat for the head is important for hypothermia prevention. Sea sickness can happen in experienced as well as novice paddlers, especially when staring at a compass in poor visibility. Sea-sickness medicines (for example, cinnarizine tablets) are most likely to be effective if taken before the onset of nausea. Sore skin from friction on constantly wet skin (such as the armpits) can be prevented with Vaseline.

Burn-out and stress

If you do more than a couple of long trips your body may not recover fully before the next trip, and chronic mild exhaustion can result. Pushing ambitious schedules in developing countries just doesn't work; the pace of life is slower and you just burn out. On challenging sea trips, safe landings can be hours away, and all team members have to be able to face the consequent fatigue and fear.

COMMERCIAL WHITE-WATER RAFTING

White-water rafting is a thrilling activity. Multiday trips are true experiences, offering unique access to wilderness areas. People with no experience of rafting, or even of outdoor activities, can be guided safely down reasonably hard rapids. Certain places in the world have thus experienced a massive growth in white-water rafting, for example, the Zambezi in Zimbabwe, and Nepal. At these sites, experienced river

Fig. 29.5 *An inflatable raft (D. Allardice)*

runners can use their hard-earned skills in gainful employment as raft guides/safety kayakers.

Before going on a raft trip

You need to be reasonably fit, so running or swimming is ideal. An ability to swim is preferable, but at least you should not be scared of water. For developing country destinations, add hepatitis A to your list of vaccinations. Clothing items will be advised by your raft company, but should include a peaked sun cap and good river sandals with either buckles or Velcro with additional fastening. You should have your own small medical kit, including paracetamol, plasters and sun screen, and iodine for grazes, cuts and emergency water sterilisation.

Safety and raft companies

Although white-water rafting appears dangerous it is actually quite safe, with low accident rates, if basic safety rules are followed. However, this is an outdoor adventure activity and you are assuming the risk by signing on. Good companies run professional standard trips, but local competition can reduce prices to the detriment of safety. You should ask about the following:

- the experience of the guides, e.g. how often they've done the river, what guiding and first aid qualifications they have;

- the age and serviceability of the rafts ("self-bailers" are best);
- buoyancy aids and helmets provided;
- whether another craft (raft or kayak) will accompany your raft.

The provision of "safety kayakers" adds to the security of the trip. There should be a safety briefing before you start that covers paddling, holding on when not paddling, and what to do if you fall into white water.

On the river in hot developing countries do not forget suntan cream and remember to drink plenty of clean water to prevent dehydration. Your buoyancy aid is vital if you fall in the water, and it should therefore be worn when manoeuvring on any flowing water. Newcomers to foreign parts worry about exotic tropical diseases, but in fact the biggest threat to your health will come from factors that you control yourself:

- prevention of accidents (especially around the fireplace);
- hygiene, especially handwashing before meals.

The river guides will explain campsite and water sterilisation procedures. Enjoy it – white-water rafting is a great experience.

All water-based trips are an enjoyable and rewarding way to travel when abroad. However, do not neglect your preparation and make sure you are fit before you go.