

DUNKING SENSE



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ISSUED BY TRAINING DIVISION, BUREAU OF AERONAUTICS,
UNITED STATES NAVY, MAY 1943

I DON'T CARE
IF THEY EVER
PICK ME UP!



DUNKING SENSE

Not every flyer goes rafting—most won't—but there will be enough pilots and air crews dunked into the briny deep to make it a sound idea to get the dope now—while you're dry.



Naturally most of us prefer to do our cruising at sea in an air-borne plane, rather than in a surface raft. Unfortunately, however, there is a bottom to all gas tanks and even occasionally a Nip may give you the wet seat. Or perhaps you're just plain lost.

That is just the time to steady down and take it easy. While you're still in the air check your navigation once more. Did you make an error? Is it too late to fly back to the location you should have been heading for all the time? It would be a big help to your base to receive your corrected position—they might even get a bearing from the transmission. All of this, of course, depends upon the tactical situation prevailing at the time.

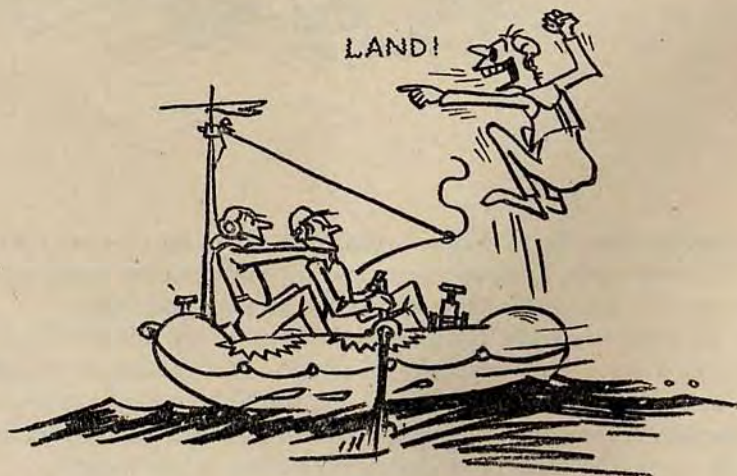


DILBERT PUTS DOWN
IN HIS OWN SWEAT!

If, however, it is obvious that shortly you are going to sit down in the drink, knock off worrying about it. Just because an impending father thinks his baby is to be the first one born is no proof that this is true. Plenty of pilots long before your time have landed in the water with little consequent trouble. Dozens of plane crews have been in a similar predicament with no unfavorable results.

So knock off stewing about it. If you've taken proper precautions to train each member of the plane crew, everything is in your favor.

Crash landing procedure has been carefully worked out and much time and thought have been spent in perfecting equipment to keep you afloat with reasonable comfort until you are picked up. It's not the Ritz, of course, but let's be grateful for small things! Your raft is a vessel which you can sail to safety. Every century has its tales of shipwrecks and small boat voyages. One great lesson stands out: *If you are determined to get ashore and go about it coolly and patiently, almost invariably you will survive no matter how great the difficulties.*



LOOK BEFORE YOU LEAP.

Are you the sort of fellow who dives merrily into an empty swimming pool, or who bails out at ten thousand feet only to have to go back for his parachute? If you are, don't read this little pamphlet. You will be more interested in shooting the breeze than in putting yourself to a little inconvenience that may save your life. But, if you are interested in old-age pensions, a recommended first step is to break-out your raft and give it plenty of study. Learn



the location and stowage of the raft, how to release and inflate it, and the purpose of every piece of equipment. Perhaps you can practice handling your raft in the water if you are somewhere where it's warm. It is well to know that the chromium reflector is intended to attract the attention of a plane overhead. Several crews might have had their ordeal cut short at the very beginning had they known where and what their reflector was.

Learn where everything in the plane is stowed and be ready to reach for it without hesita-

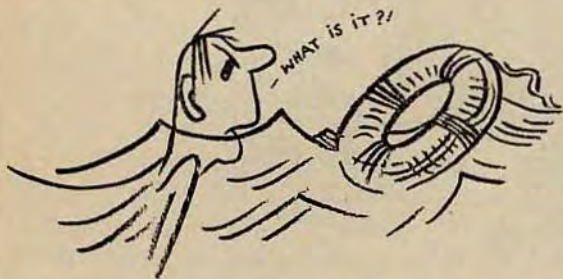


tion, even in the dark. Decide what extras you will need, stow them and know where they are. After you are in your raft if you need something, it is no good to you if it is:

1. Ashore.
2. On the carrier.
3. On the plane which you have just abandoned as it sank.

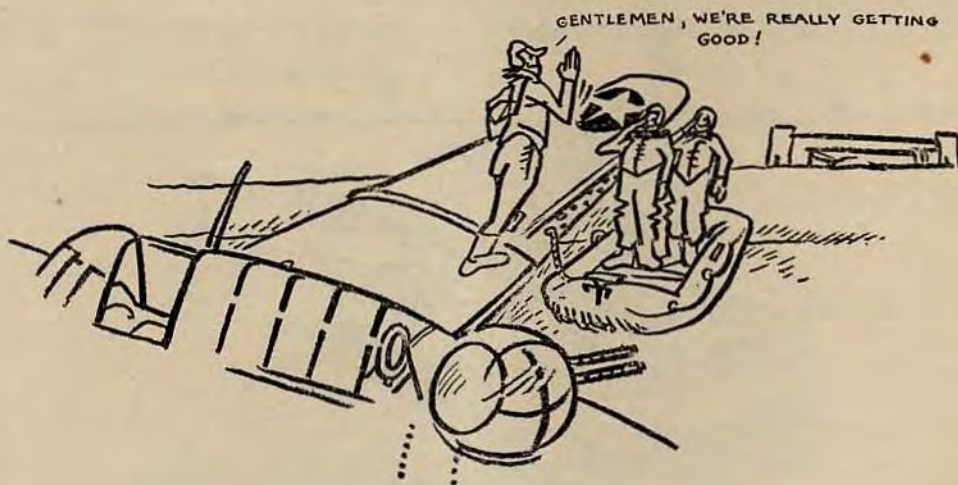
The only place it is going to do you any good is aboard the raft and it isn't going to be aboard the raft unless you put it there.

WANT TO SAVE YOUR LIFE?



Drill—drill as a team—in getting the raft away complete with all its gear and all of you. Drill so that if one of you is injured, the other, or others, can do his job in addition to their own and get him away with them. It is not enough to practice in bright sunlight and in ordinary working clothes—you must be ready to work smoothly in pitch darkness, in freezing cold, hampered by gear stowed in confined spaces, dressed in full flying kit and connected

to the plane by safety belt, interphones and oxygen tubes. Drill until doing the right thing is instinctive without orders other than "STAND BY TO DUNK." Then ask yourself questions as to what you would do under differing sets of circumstances and coordinate it with the rest of your crew. Last of all, drill some more.



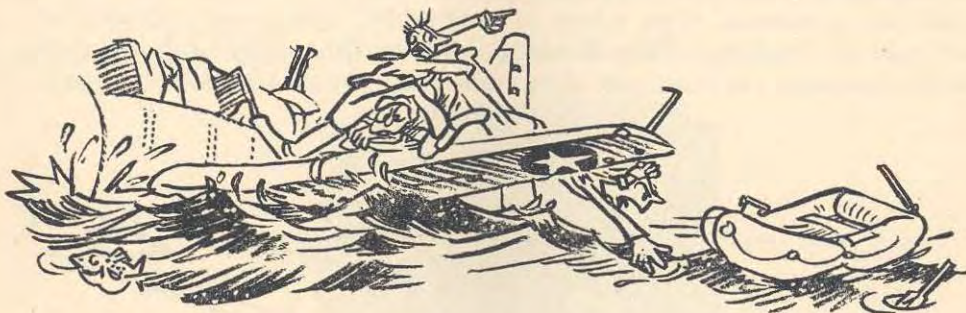
THAT EMPTY FEELING.

When you and the gas tanks share a mutual feeling of emptiness and the base seems out of reach, you can relieve your feelings by telling the rest of the crew of your situation. As a matter of fact, you *must* inform all hands, for the crew aft may have no inkling that a forced landing is impending. Once announced, preparation for dunking should start at once, particularly the radio procedure. If the existing directives permit, send a distress call off immediately giving the estimated position of landing. Don't remain silent until the last minute and run the risk of bad reception, or of not being able to get your message off at all. After all it can (and must) be canceled when no longer applicable.

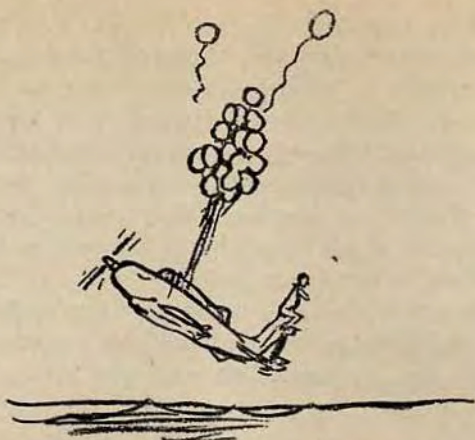
If it's imminent fuel exhaustion that's bringing you down, don't wait until the engines sputter, but land while you still have power available, for the landing speed can be reduced considerably by using engines—and you can select your spot.

ON THE LIP OF THE CUP.

You may have some warning, but you won't have much. There won't be any time for a fight talk or a conference when the pilot gives the command "Stand by to dunk!" over the interphone. Either you have drilled or you haven't and here's where it shows up.



a. *The pilot makes sure that his safety belt is fastened. His primary mission now is to set the airplane down safely. The danger is (in landplanes) that the plane will go over on its back, or nose down and dive. Both of these tendencies are caused by the drag of water on the underbody, particularly any projections, or by the entry of water through openings forward. Therefore he tries to land with the airplane as light as possible, with the center of gravity as far aft as possible (without endangering stability), with landing gear retracted, with all openings (except forward and amidships upper escape hatches) sealed, and with the plane FULLY STALLED.*

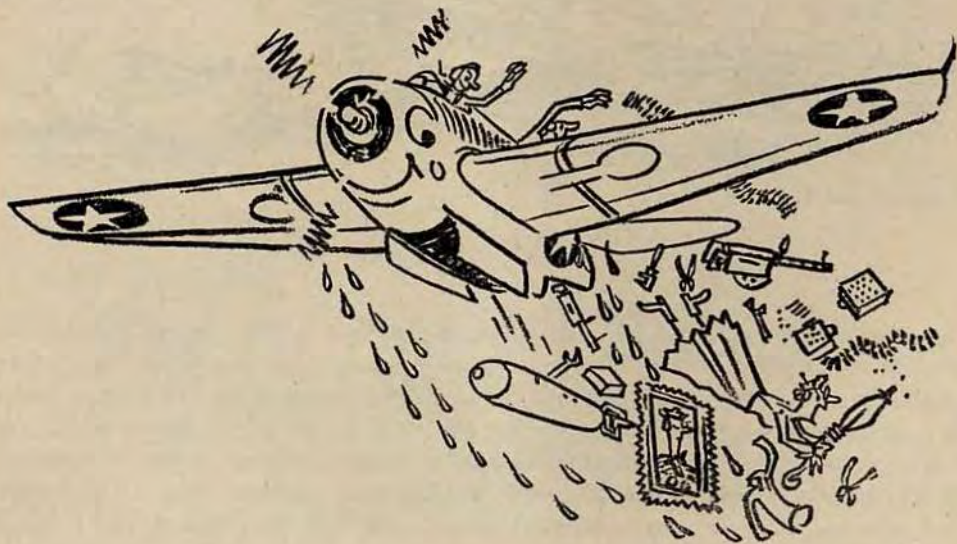


This last is so important with regard to landplanes that one pilot has been known to mutter to himself a short incantation:

“IF I’M TO LIVE UNTIL I’M BALD,
I’VE GOT TO LAND HER FULLY STALLED.”

To place the plane into optimum landing condition:

1. All disposable load should be jettisoned, if time is available. This includes bomb load, excess fuel, armament, tools, armor (if removable), ammunition, miscellaneous equipment, and personal baggage. This affords you an excellent opportunity of getting rid of Aunt Mabel’s picture in the plush and silver frame, and also of Aunt Mabel if she happens to be along.



2. Shift the center of gravity aft by dumping the forward fuel tanks where there is a choice, and by moving crew members aft. While dumping fuel, shut off electrical system to avoid igniting gas cloud and wait until you are sure you are clear before using radio.

3. Extend the flaps fully and land with flaps down in all types except the Lockheed-Hudson and its associated models, PV-1, PV-2, PV-3, PBO-1, and the R50 series. These should be landed with flaps up. The retarding effect of the flaps on the landing speed greatly overshadows the adverse effect on water drag which will be only momentary, in any event, as the flaps generally will carry away from the impact of the water. The reason why the Lockheed family is excepted from the rule of landing with flaps down, is that the flaps on these planes are so strong that they do not fail completely under the water load.

4. The pilot must use his head about jettisoning bombs. Landing with the bomb bay doors open would be fatal as the plane would probably flood and sink immediately. Therefore be dead sure that enough time and altitude remain to open the bomb doors, drop the bombs, and get the doors closed again before you land. If you are doubtful, never mind the extra weight, land with your bomb load rather than land with open bomb bays.

5. As has been already said and we are going to keep right on saying: "Don't forget to have your landing gear fully retracted."

I'LL HAVE MINE BLACK!—

Most aviators are firmly convinced that forced landings occur at the time and place least convenient for all involved. Night and the cold, wet waters of one of the seven seas form a sufficiently obnoxious combination. . . .

Swallow your hearts, dunkerees. It's not as bad as it sounds.



Night forced landing procedure is exactly the same as for day forced landing with a few additions as to lights:

a. Turn on all navigational and interior lights that will not blind the pilot and keep them on. They will burn for a time if the plane remains afloat and may assist in attracting searching aircraft. They also will assist you in abandoning ship.

b. Switch on the landing lights. Judgment of height over water at night is difficult, however, and they may not help you much. Nor can you depend on the aneroid barometer if the airplane has been in flight long enough to get into a region of different barometric pressure. One way of telling how high you are is to lower the trailing antenna weight. If the radioman

keeps his key clamped down and watches his ammeter, the current will drop when the antenna carries away as the weight touches the surface—and the radioman should immediately sing out to warn the pilot. He should then jump for his dunking station.

The radioman's dunking station should be as near as possible to his regular duty station.

DAY OR NIGHT

a. All hands take dunking stations as rapidly as possible in order to assist the pilot in determining trim. Make sure those openings are closed and the upper escape hatches are open so there is no danger of their becoming jammed. (It isn't a good idea to open the upper escape hatches if you still have a chance of making base, as they create drag; but if you are going to dunk, brother, get 'em open FAST). The well-dressed dunkeree also keeps on his helmet, flight clothing and life jacket, but removes his parachute harness, unless it is the type where the single seat raft is directly attached.



b. The navigator calculates the estimated position of the landing and passes it to the radioman. Speed is more important than exact accuracy, if you are pressed for time. You can correct the report later if time is available. The navigator then throws overboard all classified publications in their weighted covers.

c. The radioman makes the prescribed distress calls, transmits the position received from the navigator, clamps down his key, and moves to his dunking station. Directives in the Fleet govern the transmission of distress calls, etc., and should be meticulously followed.

We're

getting

lower.

Don't start unstowing the emergency gear or inflating the raft before you are down. Loss or damage will inevitably result. Remember, there is going to be a real jolt!

Say,

we

must

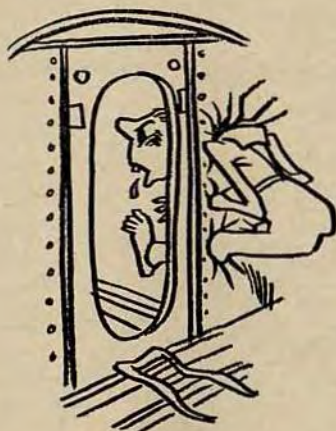
be

pretty

near

The pilot is adequately protected against the impact by his safety belt. The same applies to tail and upper turret gunners if they remain in their turrets with belts fastened, facing aft

so that the impact comes against their backs. Other members of the crew sit down on the deck facing aft with *back and head* against a bulkhead, the hands clasped behind the head to cushion the shock, or lie athwartships against a bulkhead. A third method is to lie on the back, feet forward and well apart against a bulkhead. This method is not as good as the others because of the danger of breaking an ankle, but may have to be used under certain circumstances. Don't improvise a dunking method—these have been tested—yours might fail.



DUNKED!

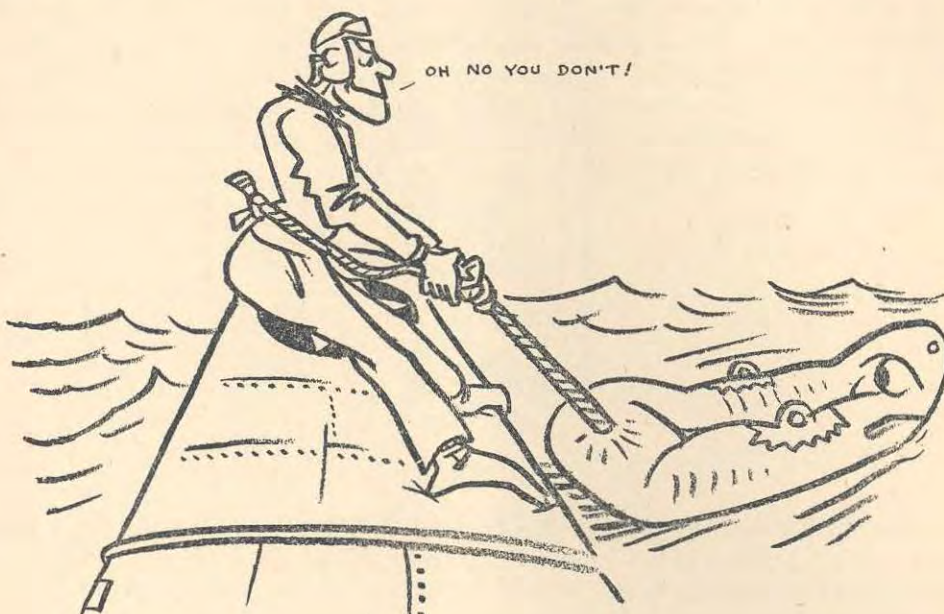
Here it is, dunkerees, first a light impact as the afterbody strikes the crest of a wave, then a heavy, final impact. Don't be fooled by the left lead; wait for the right cross. *Keep braced until the aircraft comes to rest.*

ARE YOU A QUICK-CHANGE ARTIST?



Remember the quick-change artists in old time vaudeville? They had to be fast and accurate—and so do you. You've got to change from aviators to raftsmen in a hurry. Be prepared for the sea to be a lot rougher than it appeared from aloft.

Your first job is to get the raft inflated. Even though you may have an automatic release fitted, man the manual release as soon as the airplane comes to rest (but not before). The automatic release may have been damaged. If you have the older type raft, be sure, *before you take off*, that it is stowed convenient to the main emergency escape hatch where it can be reached from the outside. There have been numerous cases where a man has had to dive under



water to get the raft out of a sinking airplane. *Be absolutely sure the raft is lashed to you or to the plane by a line before you release it in the water.* After inflation, an automatic raft remains attached to the airplane by a light painter which will part if the airplane sinks (although a knife is also provided in the raft.) Before you take off, be sure that it is so attached. *Never under any circumstances heave the raft overboard, inflated or not, before you land, and never cast it loose without a securing line.* It is highly buoyant and will be drifted away by wind and swell much faster than you can go after it.

Normally, launch the raft to windward so it will drift down on the airplane and be convenient to you, but if there is wreckage, or anything which might puncture the fabric, launch it to leeward. If it has not already started to inflate automatically, inflate it manually. If there is anything wrong, such as a fouled line, or if the raft starts inflating upside down, clear it or right it from the wing of the airplane. If this doesn't work, put one man over the side—don't all jump in the water. Wait aboard the airplane ready to lend a hand. Rafts can be righted by pushing down on the lee life line and then reaching over and grabbing the weather life line. Owing to its width this can best be done near the raft's bow. Then lean back and pull the raft over toward you. The wind will help. Another (and better) method, if time

permits, is to tie a line or an article of clothing to the weather life line and pull on it from the lee side. This gives you much better leverage.



A landsman, a boot, or a summer boarder will leap heavily into a life raft, thereby either puncturing the fabric or capsizing it, but you, being a seaman, will lower yourself into it gently and square things away for your voyage. When boarding from the sea, use the life line and wriggle up over the side as nearly horizontal as possible, using the swimming kick to help you. If you try to climb vertically as though you were climbing a wall, the raft may capsize and, very deservedly, crown you; or you may exhaust yourself to no purpose. The water will support and help you if you give it half a chance.

There is good clean fun to be had in watching a man fall down a hatchway or off a ladder and many a hearty horselaugh has gone up at the expense of a fat man stuck in an opening that is too small for his girth. Just a little whisper as a reminder. Have you tried going out the escape hatch of your plane with your flying gear on and your life jacket *fully inflated*? Try it now, on the ground and in no hurry. Then you will know whether or not to inflate your jacket *before* or *after* using the hatch. If you are the beanpole type, by all means inflate it beforehand, but be certain you will clear. In any event, inflate it as soon as practicable.

Take what gear and supplies you have decided beforehand to bring with you in addition to the regular emergency kit. Take at least one parachute along, its silk and shroud lines are going to come in mighty handy. Board the raft rapidly and carefully. The pilot should muster the crew. Check quickly that you have everything aboard that you are going to need. If your plane remains afloat you probably will want to stay close to it, secured with a light line—it's easier for a searching craft to see a plane than a small raft. But the time finally will come when the plane gives up the ghost and goes under. Then there's nothing left to do

but "Shove off, Coxswain!" A small, but genuine, United States Naval vessel has started a cruise to safety.



THE CATERPILLAR DIVE.



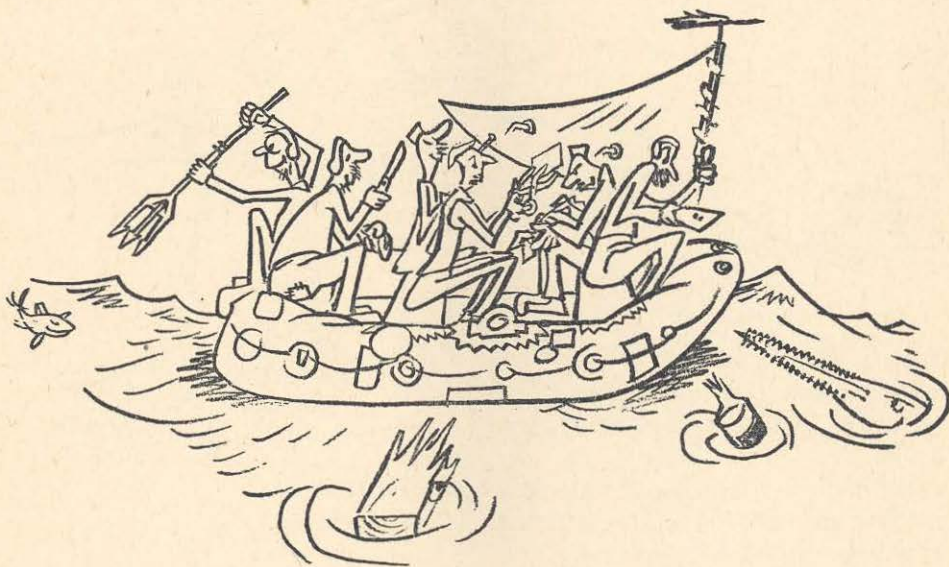
The most carefree class of dunkerees are the lads who do the caterpillar dive—otherwise, bailing out. They don't have to worry about the plane and as for the raft . . . they are in the same category as the turtle who carries his home on his back while they carry theirs on their backside. Yet, even if you are one of this group, there is a little dope you should have as you float down to set up housekeeping.

Remember that part of your emergency kit is stowed in the cockpit. Take it with you. One big DON'T. Don't try to inflate the raft in the air. It possibly can be done, but don't try. Wait till you are down. Even then don't try to inflate either your raft or your life jacket if you are being strafed. The buoyancy of the raft, even in the container, will keep you afloat and you make a less conspicuous target. Your normal procedure, however, is first to inflate your life jacket and then to slip the raft out of its container. *Under no circumstances let go of the raft.* Then inflate it and put the cockpit emergency kit on top of it, taking a turn around a thwart with a line to keep the emergency kit secure. To get out of your flying suit, hook one arm through the life line and use the other arm to work the zippers. Save your boots and gear, you are going to need them.

Now, in calm water, you can board your raft by pulling yourself over the sides amidships—really by pulling the raft toward you and swimming up. However, in rougher water it is better to follow this procedure: Get forward and slip part of your flying suit well through the line at the bow of the raft. Then slide aft and swim up over the stern, pulling the raft toward you. The weight of the water-soaked suit keeps the raft from tipping and gives you a reasonably steady platform to board.

ON A RAFT?

Well, why not? You're there anyway, whether it's a one-man job or one of the big ones that carry seven. Wherever you are, it keeps you afloat, for rafts are probably the most seaworthy craft ever invented. However, certain things must be kept in mind:



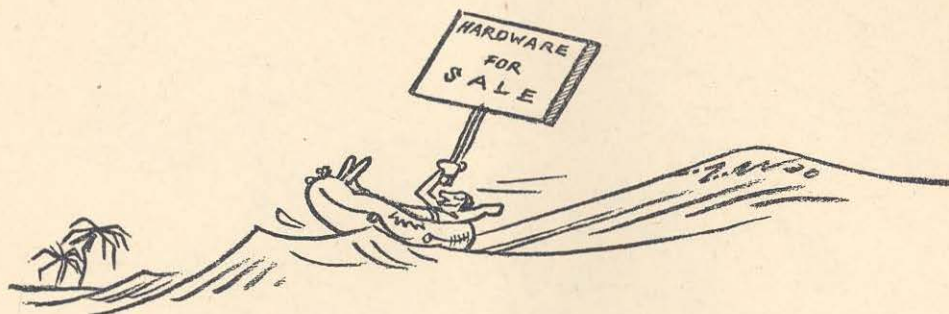
1. Avoid wreckage or anything that might put a hole in the fabric.
2. Avoid handling knives or sharp tools near the fabric for the same reason and be careful of metal buttons, the sides of shoes, etc., which might wear it thin.
3. Inspect carefully and periodically for air leaks. If you find one, plug it immediately with one of the wood or moulded rubber plugs. Then get out the patching kit, scrape the rubber around the leak with the roughing tool, make sure the scraped spot is dry, cut patch to size (large enough to cover hole and scraped area), apply cement, and then put on the patch, pressing down firmly until it takes hold.
4. Keep in mind that the larger rafts are compartmented and will float even with one compartment holed. Parachute rafts, however, have only a single air chamber.
5. An air pump is provided with which you can pump up the raft. (In the one-man rafts it is a concertina type attached directly to the flotation tube.) In the Tropics the air may expand inside the raft because of the heat. This may threaten the seams. Valve off some during the day and pump up the pressure at night when it is cool.

THAT LITTLE FLAT HOME IN THE DRINK.

Raft equipment, while standardized, varies with the type of raft which is why you must know, before you take off, just where your gear is stowed and what it is for.

There are usually three pockets, one of which is detachable for use as a bailer.

The first pocket contains:



Whistle (for signaling).

Metal reflector (for visual signaling into sun).

25 feet of 75-pound test line.

Jackknife.

Combination compass and waterproof match container.

Fishing kit (containing line, wire leaders, and feathers).

Smoke grenade holding clamp.

The second pocket contains:

Patching material.

Rubber cement.

Roughing tool.

Pliers.

Scissors.

Six leak plugs.

The third pocket contains:

Hand pump for keeping up air pressure.

Jointed oars.

Sail fabric.

The waterproof fabric container for the emergency equipment which is usually (*but not always*) attached to the raft by a ten-foot line, has inside it:

First-aid kit.

One package of emergency rations per man.

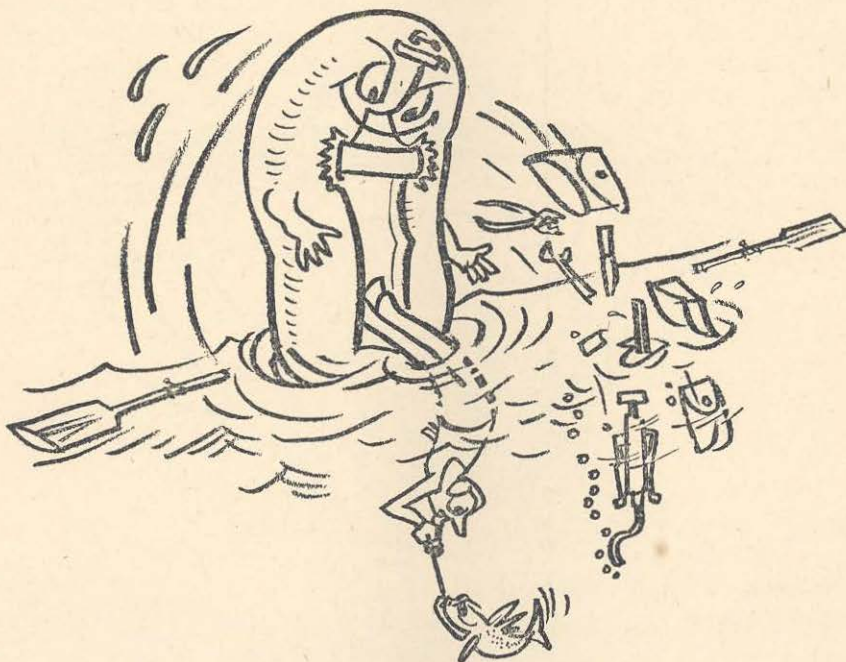
Two 12-ounce cans of emergency water per man.

Two H-C smoke grenades (the clamp for holding them is, as already listed, in one of the side pockets).

One can of fluorescein dye (when sprinkled over the side, makes a conspicuous yellow-green stain on the water for attracting the attention of searching aircraft).

All members of a plane crew should have examined every one of these articles during a drill so they know just what they are and where they are.

LASH AND STOW!



Don't start rubbing your hands, though, when you read the equipment list. Grab a line instead and lash everything in place. For rafts, owing to their buoyancy are also very unstable and liable to capsize. *What is not lashed is as good as lost overboard.*

Keep five rules in mind:

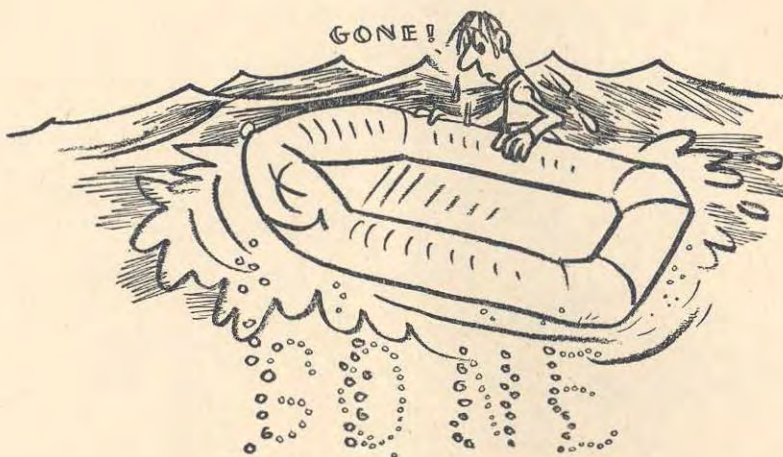
1. Keep everything lashed.
2. Keep the pockets in the raft buttoned, except when actually removing an article.
3. Watch the trim at all times.
4. If capsized, one man should get on the weather side to keep her from going over again as the others climb aboard from the lee side.

If there is more than one man on the raft, the crew should stand watches. This puts someone on the alert at all times for such events as sighting vessels, changes of weather, lines beginning to chafe, leaks, etc. The raft should be lashed to the man on watch with not less than 10 feet of line to keep it from drifting away in the event it should overturn. *Under no circum-*

stances, however, lash a man directly to the raft with less than ten feet of scope. If it were to capsize under these conditions, he might drown before the raft could be righted.

No, that fifth rule hasn't been forgotten. It's the same as the first: Keep everything lashed.

Lash, brothers, lash with care,
For what ain't lashed,
Just won't be there.



"QUICK, HENRY, YOUR SHIRT!"

To go back, suppose, though, that you consider that you have a reasonable chance to keep your plane afloat or you belong to the aristocracy of dunkerees and have a floatplane or flying boat. When you have landed in a landplane, throw overboard everything heavy, remove the drain plug from the bottom of the gasoline filter and empty your tanks (using the wobble pump if necessary), and drain out the oil. But if in a seaplane and the engine will function at all, save some of the gas and oil to charge the batteries for operating the radio. Be careful when draining fuel not to let a spark get near it. Lash the stick all the way back and get the crew aft to keep her nose up. She may last for a while and permit both you and your plane to be saved. In all types, rig a sea anchor. If the plane is not already so equipped, improvise one. A parachute will do. Stuff any holes full of clothes or other leak delaying materials (Where's that shirt?) or else get a patch over them. Failing this, try to keep the hole above water by dropping the opposite wing.

With a wing float holed, taxi with the damaged float out of the water. In a calm this can be done by turning in circles with the damaged float out of the water, the old beetle-on-the-pin technique, until you can get somebody on the opposite wing. If there is no wind, do not circle but cock the plane across the wind in order to keep the damaged float into it. The wind under the wing will assist in keeping the float out of the water.

In all cases, have your raft ready as soon as you come to a stop and be prepared to abandon ship. Be sure it is in all respects ready to receive you. Beyond a certain point (and there you must use your own judgment) you are much safer on a good, buoyant raft, no matter how small, than you are on a waterlogged and sinking plane, no matter how large.

SEA ANCHORS AWEIGH!

Stay near your plane until it sinks in order that you may be sighted more easily, then shove off. Study your chart. Never mind how far it is to land. Patrol planes and convoys probably will pick you up, but the essential thing is to have an objective and be *determined* to make it. Fight your way ashore and never give up. Then, in later years when you are elderly and irascible, you will fully understand how the landsman's remark, "They finally drifted ashore," can cause rising blood pressure and hardening of the arteries.



Rafts can be both sailed and rowed. Oars of a jointed type are provided which will serve also as a mast. To erect this, take the center section of one oar and fit it into the other. Then remove the CO₂ bottle which inflated the boat and thrust the blade of the oar down into the bottle container at the bow of the raft. Make shrouds either from the shroud lines of your parachute or from the line in the fishing kit (you have a full 100 feet there and probably won't need it all to fish with). Rig the sail either from the sail cloth provided (we are going to talk more about that sail cloth—a 56- by 56-inch piece of water-repellent material) or from a double or triple thickness of parachute silk. Do not belay the foot of the sail but secure one end so you can let it go in a hurry in the event of a squall. Sit to windward of the sail so it won't pin you under if you capsize.

Even if you can't get a sail rigged, rafts will, to some extent, sail themselves because of their flat and smooth bottoms with comparatively high freeboards. They usually remain lengthwise of the trough and show little tendency to yaw. You can take advantage of this characteristic by letting her drift if the wind is in the right direction and checking the drift as much as you can with a sea anchor when the wind shifts and opposes your desired track.

A sea anchor can be made from any object which will float partly submerged since this will provide a definite drag when attached to the bow by a line. The parachute seat rafts have bucket type sea anchors rigged with them while the larger types use the fabric container which holds the emergency kit. In the absence of these, driftwood, a life jacket, a canvas bucket, all make acceptable sea anchors. Be liberal with the amount of line you pay out, otherwise the

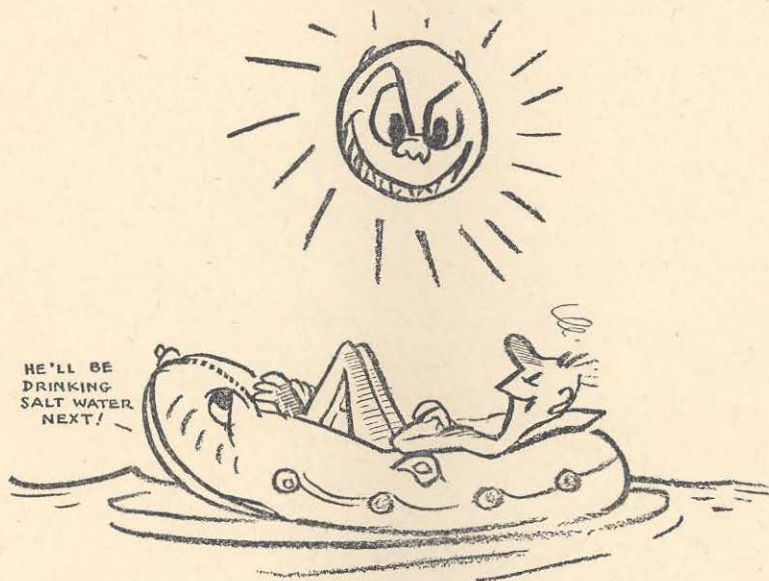


raft will jerk violently. Watch this line as well as the raft for chafing, particularly where it is attached to the bow of the raft and to the sea anchor. Protection can be afforded by wrapping the danger points with cloth from your shirt, etc. A sea anchor will not only check your drift, but will hold the raft bow on into a heavy sea, thus reducing the danger of capsizing.

In making your shrouds and lashings, try and use material such as your parachute shrouds rather than the 25-foot length of line which you will find in the raft's pocket. Then, if your sea anchor carries away, you have a long line ready at hand and will not have to resort to splicing or bending ends of shorter ones together. To rerig the sea anchor, bend on to the long line the first thing that comes to hand that will float partly submerged and pay it out.

ARE YOU HOT-HEADED?

Have you got cold feet? No; this isn't a course in self-analysis that has crept in by mistake. It's the old-time medicine-show barker bellowing that if you have any of these interesting symptoms then take . . . *precautions*.

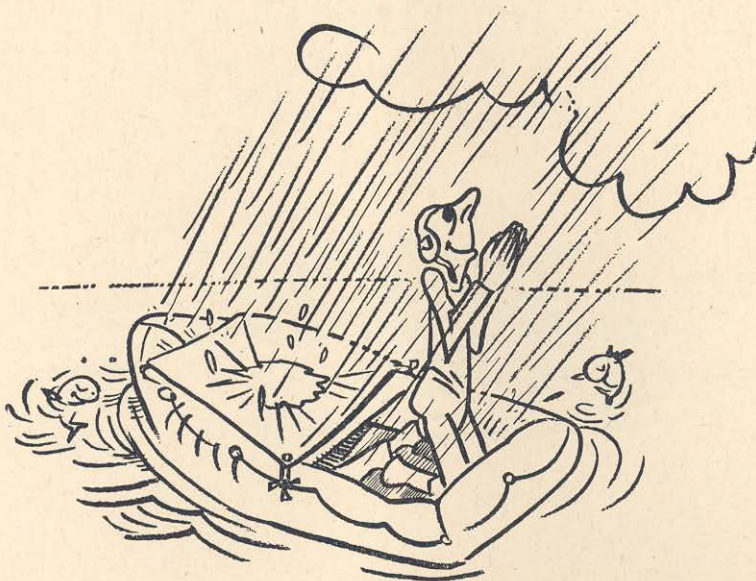


Sunburn and windburn are formidable enemies which can cause serious toxic reactions. Your clothes protect you against both of these and should not be discarded even in the hottest climates. If the water and air temperature is high, dunk yourself over the side fully dressed. This will also help against dehydration about which we are going to talk in a moment. Improve head covering or spread a parachute as an awning. Rubbing exposed surfaces with any oily part of a raw fish, especially the fatty layers just under its skin, is of some assistance against these twin enemies.

Another essential precaution is to guard against "Immersion Foot," caused by continued exposure to cool or cold water such as that collecting in the bottom of a raft. Get the feet out of water by periodically swaying back in the boat and elevating them to dry. While so elevated keep the circulation up by vigorous chafing. This is highly important, otherwise gangrene may set in.

DON'T COME IN WHEN IT RAINS.

Dehydration, or the drying up of body moisture, is the chief difficulty facing dunkerees on a long cruise. The system turns to any source for liquid. Therefore, while the kidneys may function freely, bowel movements are generally few, since they consist of 90 percent moisture. Even one movement a month could be considered normal under these extraordinary circumstances. If your water supply is low don't hesitate to eat raw fish, which has a high moisture content, together with the liver and the solid parts of the entrails. Do not eat the soft parts of the entrails. You may drink fish blood if you are thirsty enough. It will do you no harm and will do some good. *Don't drink seawater.*



Collection of every bit of fresh water possible is of the utmost importance even if your emergency supply remains untouched. Therefore, to repeat, don't come in when it rains. Any rain should be immediately taken advantage of by using the waterproof sail fabric to make a container. (It is that 56- by 56-inch piece of fabric that is useful as a sail, a container, an awning, and for camouflage.) Pour the water collected into the bailing pocket, after using the first of it to rinse both the cloth and the pocket to free them of salt. If you haven't got the sailcloth, use any absorbent cloth to soak up the water and then wring it out into the bailing pocket.

When filled, the bailing pocket should be kept buttoned. If you capsize and recover quickly there is a fair chance that the fresh water will not seep out or become brackish.

THE COMPLEAT ANGLER—DUNKEREE STYLE.

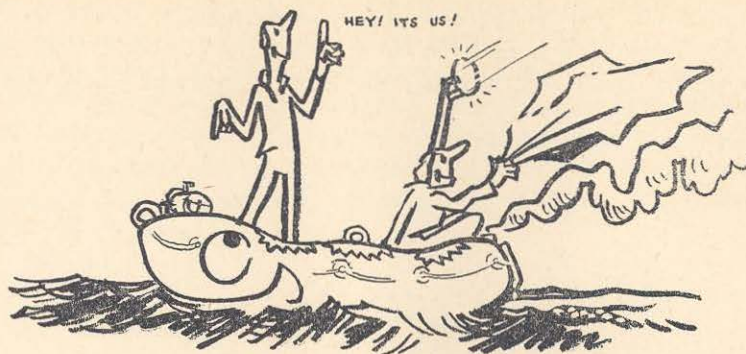
Nobody's going to beat your fish stories when you get home. When the loquacious fisherman fills his glass and rears back to describe the big fish that got away from him on the Restigouche, clear your throat firmly and mention the big fish you got away from in the Pacific.



If you get no bites on your line, lash your knife to your wrist with a lanyard and spear fish with it. This may be impracticable except in warm seas, but it has been done in a number of cases. Even sharks have been taken by being stabbed in the gill. It requires great patience, for the fish must be allowed to come up practically alongside. Then stab quick and hard and try to heave him into the boat. Seabirds have occasionally been killed the same way when alighting on the water or grabbed when they came down on the raft. It is very difficult to shoot them in the air from so unstable a platform.

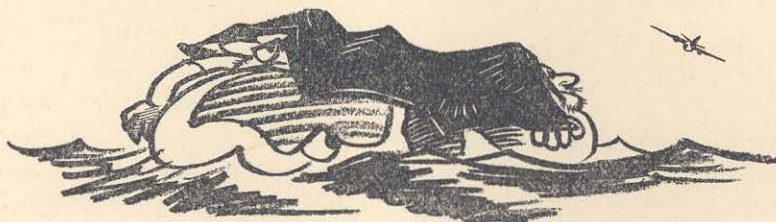
Sharks are edible, as are dogfish. Only don't try to get too big a one. Treat sharks with plenty of respect and in shark-infested waters avoid either trailing hands over the side or dunking yourself. If you do happen to go overboard or if the raft capsizes—splash and kick as much as you can while getting back aboard. Sharks are cowardly and are puzzled by such tactics, but don't rely on their remaining puzzled too long. Above all in waters where sharks may occur, whether or not you have seen any, avoid getting blood into the water. Wash wounds in the raft and watch out for fish blood when cleaning fish.

THE CHAMELEON TURN.



Rafts are provided with several means of signalling rescue craft, including a reflector, smoke grenades, and fluorescein dye. This latter makes a conspicuous stain on the water, as has already been said, but the stain will last only a few hours and must therefore be used with discretion. As a matter of fact, nothing calls for better judgment than when and where to use signals. If you use up your equipment on the off-chance of somebody seeing you, perhaps you are forfeiting a real chance of rescue a few hours later. *Be sure, too, that you are signaling a friend and not an enemy.*

If an enemy plane appears, the time has come for you to do a chameleon turn, and hope he doesn't sight you. That sailcloth we have referred to so frequently, is orange-yellow on one side and dark blue on the other. Change colors quick. Yank the sail down and spread it over you, sea-blue side up. If it doesn't cover the whole raft, hang clothes over the exposed



parts or cover them with your bodies so the orange-yellow won't show up. If he strafes you, go over the side and remember that the raft will still float with one compartment holed. But be certain everyone hangs on to the raft to be sure it doesn't drift out of reach.

REAL SEAGOING.

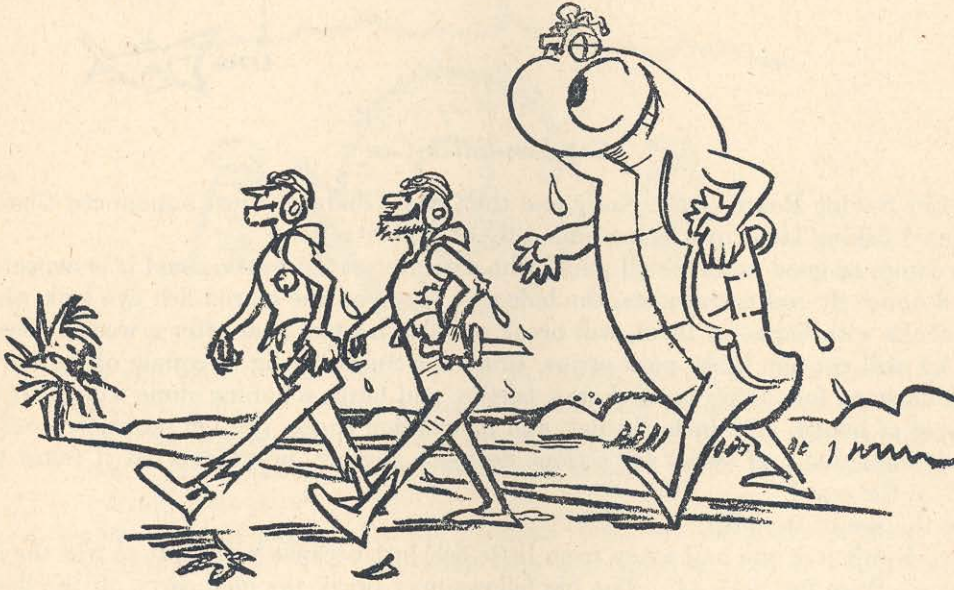
That's the way you've got to be on a raft and in the plane before it lands at sea. Only by real sea discipline will you come through. Discipline means ordered cooperation. Rations must be strictly meted out and consumed as issued, no "credits" being allowed for unused portions. Watches must be stood responsibly and faithfully. The Navy expects you to live up to its mighty tradition.

COMING ASHORE.

When you sight land, be wary of the surf. Avoid it or stay offshore, if you can, until picked up. If you do have to go through it, try to cling to the raft and hope for the best. Strike your sail and awnings to prevent becoming tangled up in them. Pay your sea anchor out with all the line you have attached to it. It may save you from being catapulted end over end.

You're going to realize, when you hit the beach at last, that what carried you through was:

1. Determination.
2. Drill.
3. Discipline.



SPORTSMAN'S DEPARTMENT



Catch-as-Catch-Can

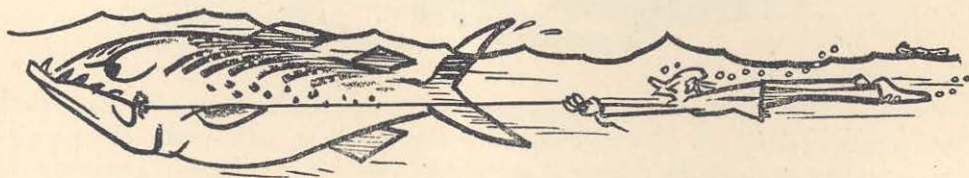
The Life Saving Board of the Navy and the Coast Guard has just announced that a carefully planned fishing kit is now being added to all rubber rafts.

This comes as good news for all pilots who are interested in eating and it is expected that even the 3-ounce fly-rod enthusiasts, the lads who give you the glazed fish eye look when you mention hooks with barbs on them, will break out this heavier gear after a week at sea.

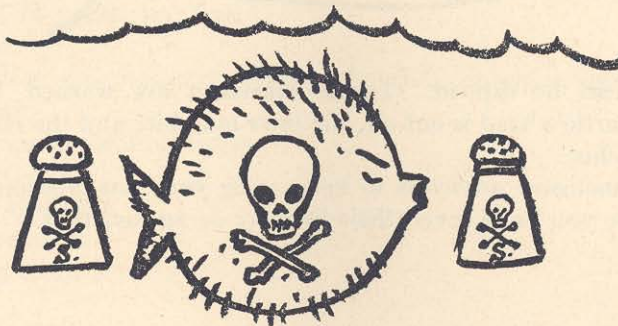
The kit will contain lines, pork strips, sinkers, a mackerel jig, a couple of feather jigs, a grapple, a harpoon for taking *small* sharks, turtles, and birds, a honing stone with float handle, various sizes of hooks, a 12-inch dip net, and instruction sheets printed on waterproof paper. This tackle, designed and tested for serious deep-sea angling, provides what it takes to "live off the fat of the sea."

As to the use of the kit:

1. Don't jerk the bait away from little fish just because you want to win the Tarpon Prize for 1943-44. The big fellows may break the line, carry off the bait, gash your hands, or upset the boat. Stick to the small fry!



2. If sharks are in the vicinity stop fishing. If they don't take the hint and move on, remember that their nose and gills are most tender spots and if you hit them with an oar well above the belt it will send them on their way. *Small* sharks may be harpooned just aft of the dorsal fin but fishermen must be alert to keep the line taut and save the harpoon if the shark tries to roll over and bite the line.
3. Don't encourage your bait to hide in seaweed. Keep it clean!
4. Keep part of the first bird or fish you catch to be used for bait. Use live bait whenever possible, saving the pork rind for emergencies when there is nothing else available. If there is no bait, try a white button, or a narrow strip of leather or canvas. The "school" idiot may come along and be taken in.



5. Fish can supply both food and drink. Fish juice has been tested and found safe for drinking; it tastes much like the juice of oysters or clams. Eat until your hunger is satisfied and if there is an excess of fish the remainder can be cut in clean pieces and squeezed in a twisted cloth to force out the juice to quench your thirst.
6. Unless there is plenty of water at hand don't eat the livers or meat of sharks, skates, or rays. The same holds true of seaweed and crabs. They are too salty to eat if water is scarce. Jellyfish, *sea* snakes, parrot fish and puffer fish are poisonous. However, don't be too high-minded about passing them along to other fish in the form of bait.
7. Dried fish can be kept from the day when fishing is good against the day when they won't bite. Cut the meat into thin narrow strips and dry them in the sun. Fish can be preserved in this way for several days.

8. The meat, blood, and juice of sea turtles are good to eat and a turtle can be caught easily by throwing a grapple or fishhook across it where the hook will catch in the leg or neck or in the edge of the shell. Or usual anti-tank procedure can be followed. The hot sun will bring a clear oil out of turtle fat, into which sea



biscuit can be dipped. Turtle fishermen are warned, however, that even after a turtle's head is cut off, the jaws may bite and the claws may inflict painful scratches.

The final and all inclusive advice is to keep using your imagination and common sense. Many other men before you have saved their lives by doing just that.

CHECK-OFF LIST

1. Is raft in good condition?
2. Is charger bottle full?
3. First pocket:
 - Whistle.
 - Metal reflector.
 - 25 feet of 75-pound test line.
 - Jackknife.
 - Combination compass and waterproof match container—are matches in it?
 - Fishing kit.
 - Smoke grenade holding clamp.
4. Second pocket:
 - Patching material.
 - Rubber cement.
 - Roughing tool.
 - Pliers.
 - Scissors.
 - Six leak plugs.
5. Third pocket:
 - Hand pump for keeping up air pressure.
 - Jointed oars.
 - Sail fabric.
6. Waterproof container:
 - First-aid kit.
 - One package emergency rations per man.
 - Two 12-ounce cans of emergency water per man.
 - Two H-C smoke grenades.
 - One can fluorescein dye.
7. Check for unauthorized gear that might prevent raft from inflating properly.
8. Are life lines clear so they will not foul when raft inflates?
9. Are automatic and manual releases in proper condition?
10. DO YOU KNOW YOUR DRILL?

(Cut along line)

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