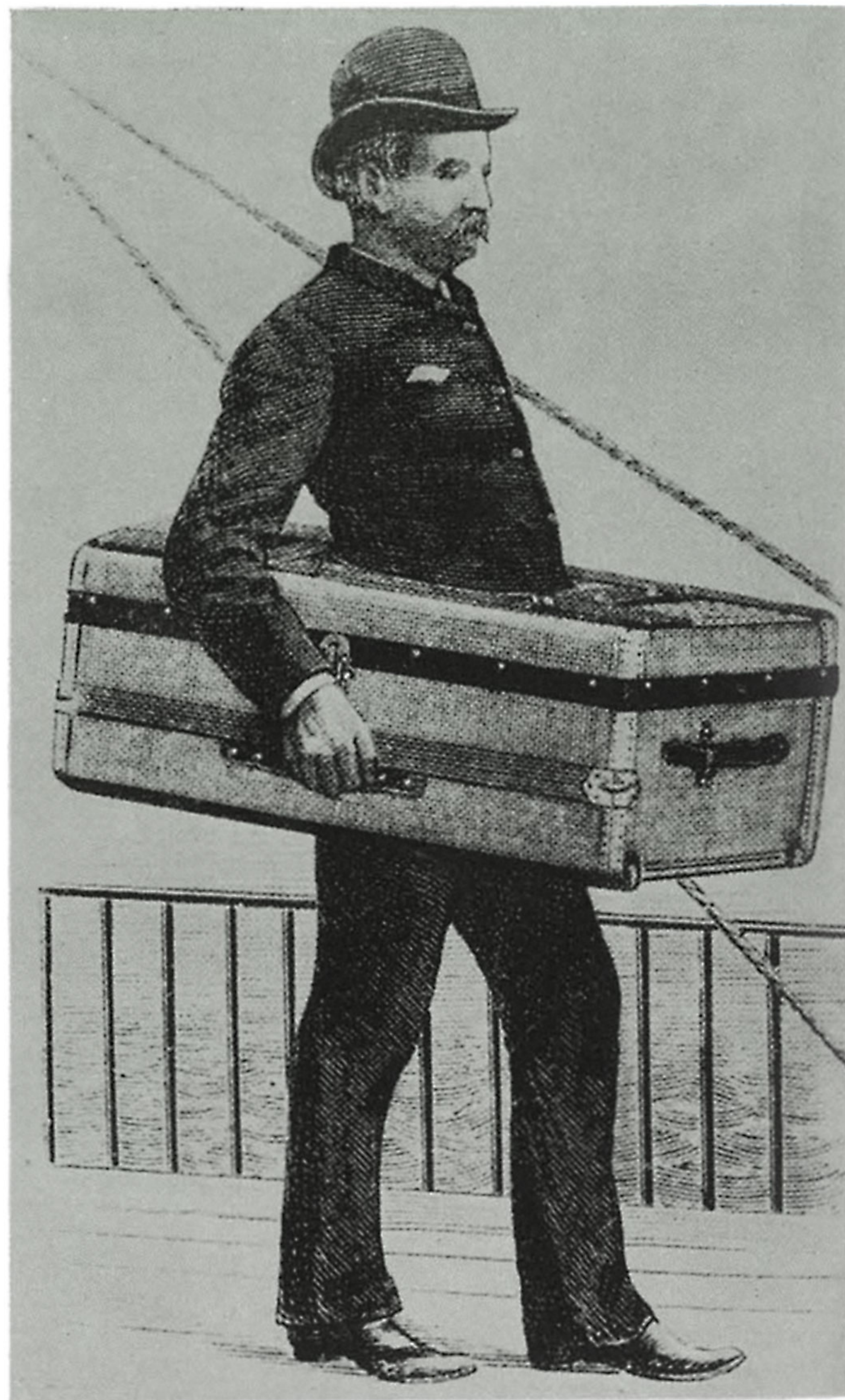


DESIGNED FOR SURVIVAL

Some of the ingenious,
frequently amusing
devices proposed for
saving life at sea.

When a ship went down in Nelson's day, survival was a matter of clinging to a spar and hoping for the best. Even a hundred years ago a short sea journey was a hazardous undertaking from the passenger's point of view.

Hardened travellers began taking their own life-saving gear with them. A German called Krenkel, a native of Leipzig, invented a cork-lined trunk in 1825 that could be worn like a life-belt. All the owner had to do was tip out the contents, put it over his head and jump into the sea.



Herr Krenkel wearing his cork-lined life-saving trunk.

Courtesy Martyn Clemans

Alternatively, the traveller could go to a department store and buy one of Captain Stone's "Life-Saving Suits" for about £300. This was made of rubber and was supported in the water by air pockets front and back. Paddles were provided for the hands, and water-tight boots covered the feet. A buoy bearing the owner's name in gold letters was attached to the suit. Luxuries such as cigars and playing cards were placed in the pockets to keep the survivors amused while they waited to be picked up. Unfortunately, it took half an hour to climb into the suit, too long for most sinking ships.

Many amusing and ingenious devices began to appear as anxiety about safety at sea, or rather lack of it, grew. John Bentley's "Nautilus" of 1797 was one of the earliest air-filled devices for supporting a man in the water.

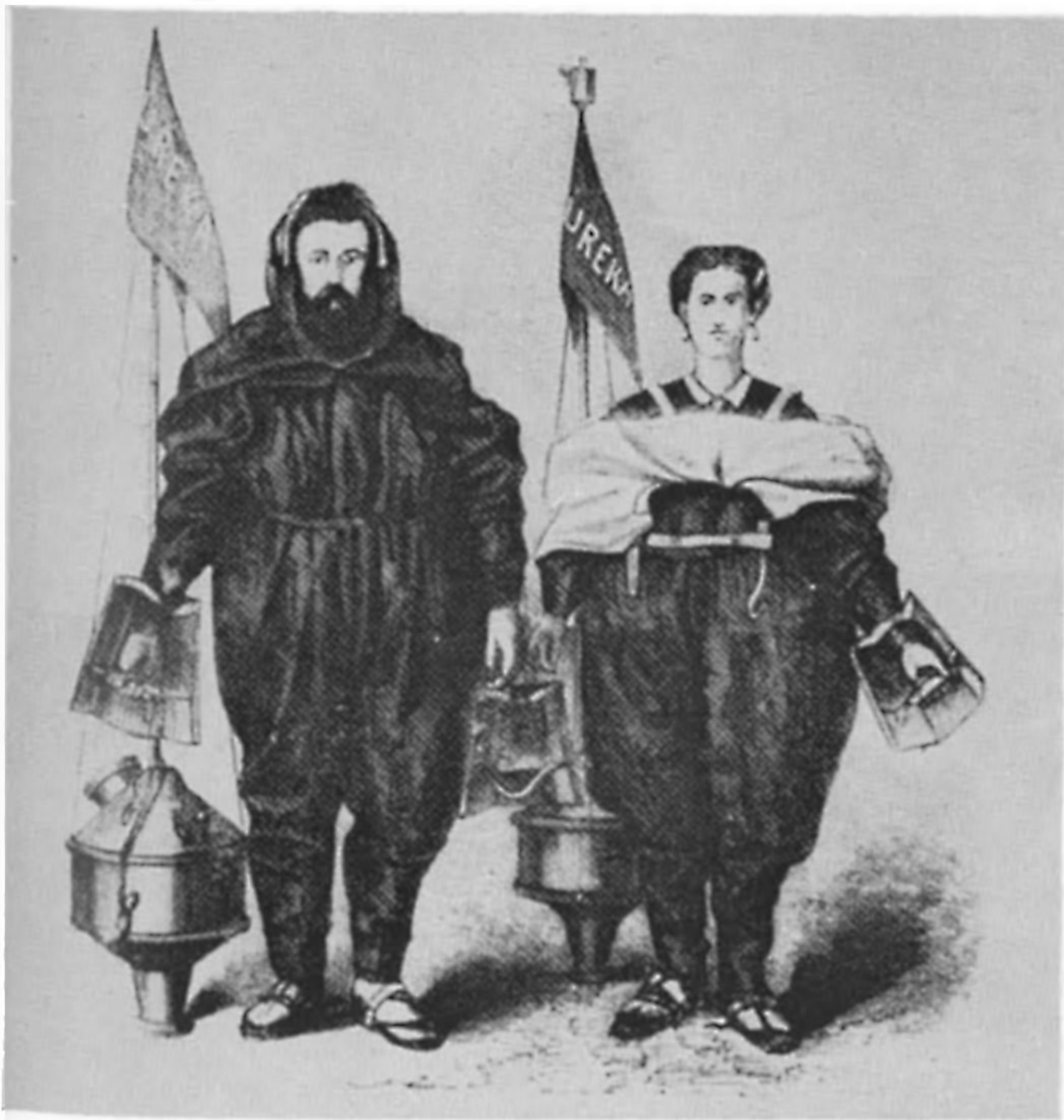
This three-chambered copper belt was worn round the waist, and fixed to the body with shoulder straps and a waist tie. It had a covering of baize, and the full kit consisted of oiled-silk swimming gloves and frog-feet of leather supported by wooden struts.

The drawback to copper was the difficulty and cost of making air-sealed joints at that time. To get round this difficulty, Bentley provided a tube into each of the air chambers so that if water seeped in, it could be sucked out.

After the Nautilus, many other high-sounding inventions began to appear. In 1810 Thomas Cleghorn produced his "Hydro-Aeronaut or Navigator's Life-Buoy." This was simply a weighted barrel with a mast driven into the bung-hole. The ship-wrecked passenger sat astride the belly of the barrel and clung to the base of the mast for support.

The "Ship and Life-Preserver" followed a few years later. Ralph Watson went so far as to petition King George IV for support, without success. The Preserver was a pair of air-filled metal globes, linked by ropes. These were to be hung at suitable places on the deck of a ship. In the event of a disaster they could be thrown into the sea, or would float free if the vessel went down. Any survivors could cling to the ropes for support, or lie across them.

Henry Bateman of New York studied the pattern of shipwreck and noted how often lifeboats stove-in, or capsized on launching. He thought the answer to this problem lay in seating each passenger in his own capsule



Captain Stone and his wife wearing life-saving suits of their own invention.

Courtesy Martyn Clemans

with a lid to it. If disaster struck when a lifeboat was launched, the capsules would all float free and could be picked up.

Bateman nearly lost his life in the Hudson River when his invention was tried out at the Naval Exhibition in 1831. The lid of the capsule he was floating in could not be opened.

It was not long before 19th-century technologists began employing a principle and material known even in biblical times, and calling them "revolutionary."

Sometime before 859 B.C. a commando unit of King Assur-nasir-pal II of Assyria's army used inflated animal skins to swim silently across a river to attack the enemy. Two thousand six hundred and seventy years later a procession of swimmers made its way up the Thames from London Bridge to Westminster to advertise Daniel's "Life Preserver." Some of the demonstrators carried bags on their back marked 28 lbs. This quantity of sea biscuits was supposed to be provision for 14 days in the water!

The Life-Preserver was a waterproofed inflatable leather belt worn loosely around the waist and tied between the legs with leather straps. It could be quickly inflated by blowing through a silver tube. A hunting horn was provided for sounding the alarm should the ammunition for the horse-pistol, contained within the leather helmet, get wet.

The German Shipping Association developed this idea still further by inserting one-way air valves into the belt, and putting a helical spring inside to hold it in shape. When this spring was pulled open concertina fashion, air was drawn in and the belt held inflated.

But there was no future in air-filled devices as long as leather remained the only available sheet material. Once Thomas Hancock in the U.K. and Charles Goodyear in the U.S. had developed the rubber vulcanization process by which rubber could be made to retain its flexibility, a whole new field was opened up.

Inflatable rubber boats were soon afloat, Charles Mackintosh, Hancock's partner, made one from rubber-proofed canvas in 1822. It was a success. Sir John Franklin took it on his ill-fated expedition in search of the North West passage that same year.

Expeditions in search of Franklin carried improved versions designed by Lt. Peter Halkett. One of these craft was brought back from the Arctic by Dr. Rae, physician to the expedition. It was found in the loft of his house on Orkney Island in 1954 and is now in the Stromness Museum there.

Halkett tried to secure the adoption of rubber boats by the British Navy without success. In 1846 he gave a demonstration of their prowess while the fleet was in the Bay of Biscay. The Secretary to the Admiralty was unimpressed, however. He later told Halkett he did not think the invention "would be applicable for general purposes in the Navy Service." A hundred years later rubber boats saved about 23,000 allied lives in World War II.

Like all Victorian inventors, Peter Halkett was able to give much freer rein to his imagination than he might do today. His "Boat-Cloak" for instance was destined to



Assur-nasir-pal II employed inflated animal skins to get his army across a river.

Courtesy British Museum

appeal to the sartorially minded explorer. This garment, which weighed about seven pounds, had a large rubber-covered canvas pocket in the back that could be inflated in half a minute with a pair of bellows. Motive power was from a hand paddle concealed in the lining.

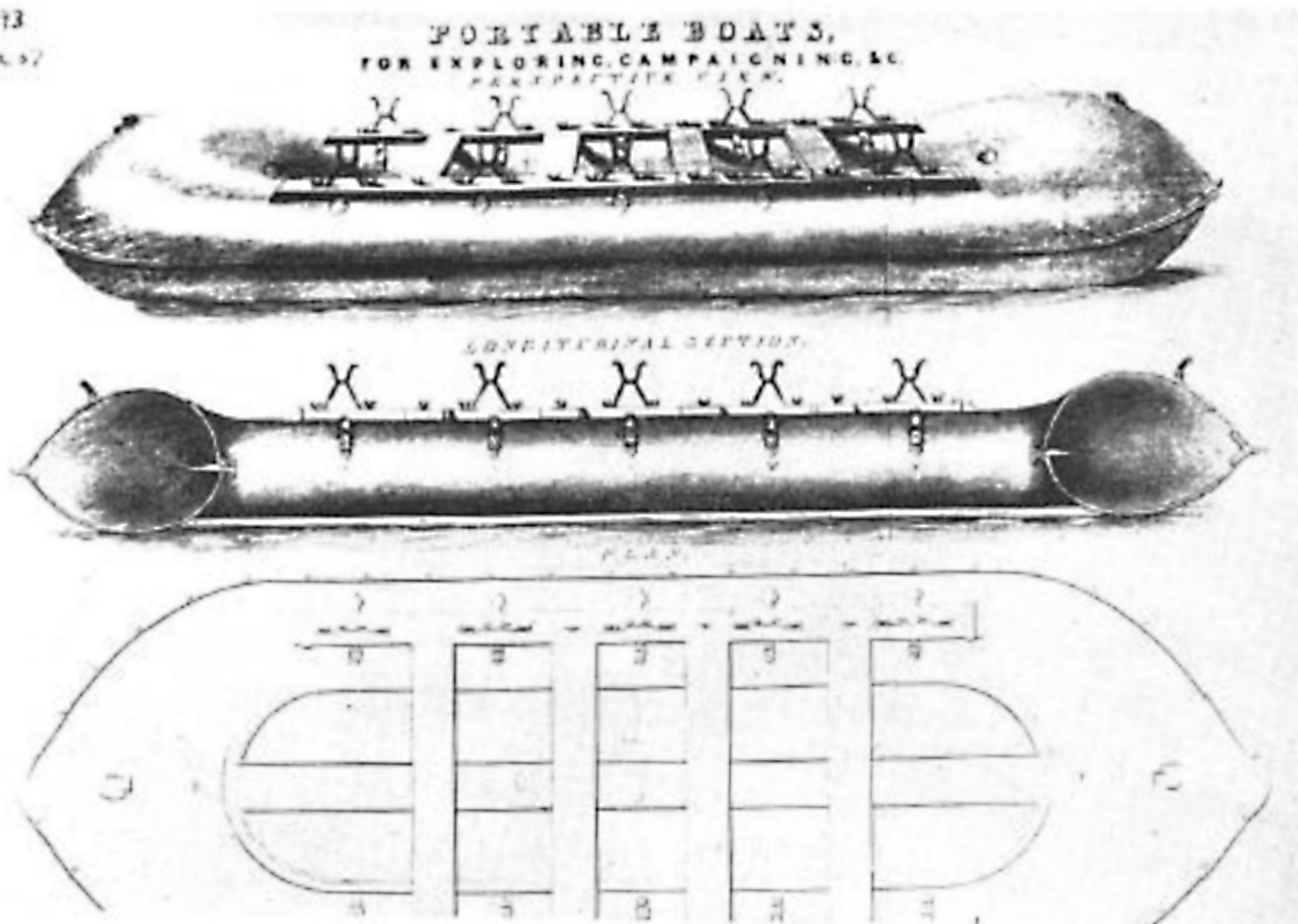
But the serious commercial designer, faced with the problem of making a profit, turned to cork for its buoyancy effect. Alfred Kynaston's "Life-Buoy" combined the contained air principle with cork blocks. The blocks were set in a horse-shoe shaped frame of canes and the whole thing was covered by a skin of canvas smeared with tar. A flagstaff bolted to the bend of the horsehoe provided a hand hold at its base for the occupant to cling to.

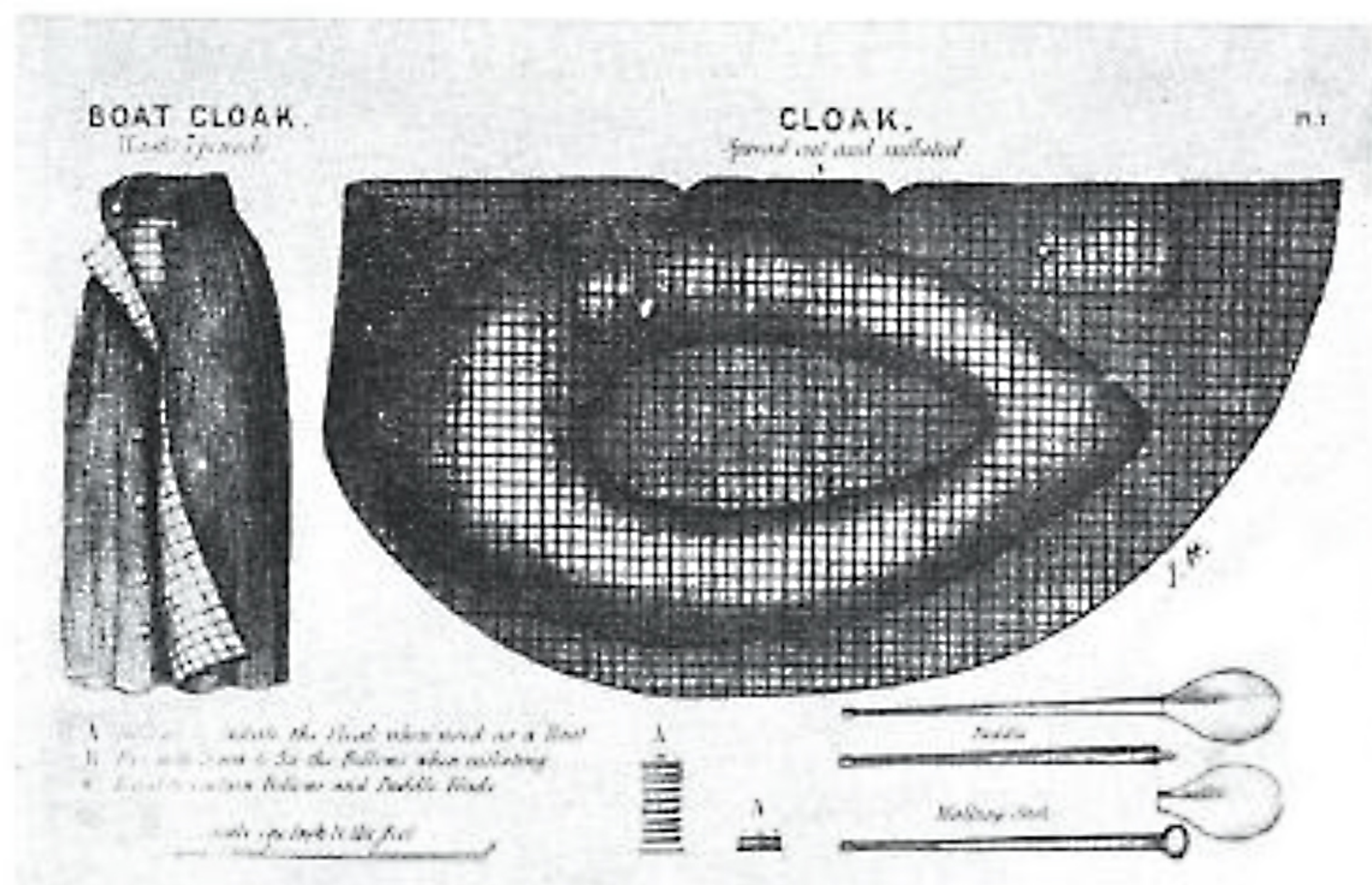
The first true life-jacket of cork, of which there is any record, was made by a Frenchman, de Gelacy, in 1757. Then in 1788, a Paris boat builder jumped into the Seine to demonstrate the effectiveness of his jacket, simply a bundle of cork strips tied together with string.

The "Seaman's Friend" designed by the choleric, W. H. Mallison, appeared in 1811 amid a riot of knocking-copy for other designs on the market. The "Friend" consisted of slabs of cork worn front and back and joined by tapes. The jacket was unstable in the water and had the extreme disadvantage of requiring a range of sizes to suit the height and girth of the wearer. Mallison spent a lot of money promoting his design.

Thomas Hancock's rubber boat was more than 18 ft. long. It had five sets of row-locks and could carry upwards of ten people.

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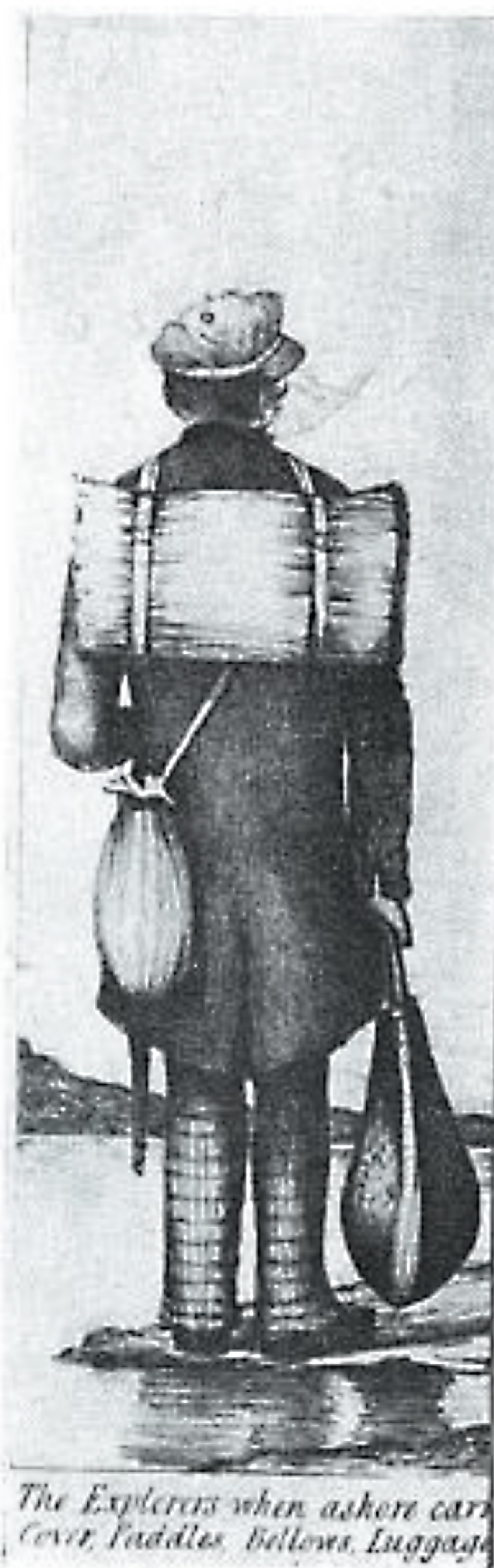


By 1860 the British lifeboat service was wearing the "Cork-Waist Life-Belt" specially designed for it by Captain Ward. The same jacket was later introduced into the U.S. Service. It was an extremely compact design, having strips of cork stuck to a canvas frame which was sewn to an outer cover to give extra strength. Orders were posted that lifeboatmen were to don this "on every occasion of their going afloat." Many men scorned the practice as cowardly, and a surprising amount of persuasion was needed to change this attitude.

The disadvantage, or, rather danger, of cork jackets was their liability to injure the wearer when jumping into the sea from any height. Also they were extremely uncomfortable because of their stiffness and the chaffing action on neck and chin in waves.

In 1906 the first kapok type came in. For 50 years this material remained pre-eminent. Only recently has its efficiency been questioned. Dutch tests carried out in 1958 proved what many people had long suspected—that kapok will not stand prolonged immersion in oily water. The result was the introduction of jackets with the kapok enclosed in a plastic envelope.

Modern materials and manufacturing techniques have now made possible the construction of cheap life-jackets that will support even an unconscious man in the water. Future trends are likely to include the greater use of air-container jackets and foam plastics, giving increased uplift per unit area and in turn greater comfort to the wearer.



The Explorers when ashore carry Cover, Paddles, Bellows, Luggage

Early inflatable boat cloak could be packed and transported on an intrepid Victorian explorer's back.

Lt. Peter Halkett demonstrated his rubber boat for the first time when the British fleet was in the Bay of Biscay during 1844.

