"All this time the water was being slowly pumped out. This progress was slow, the water being so cold that it was impossible to stay in more than a few minutes at a time. The first time I went into the starboard pontoon I only staid in ten minutes, and when I came back to the hatch, I had to be lifted out, as I was so very exhausted with the cold. But after I had rested for an hour or two I again entered the pontoon, and continued my patching and caulking as before. I continued this work for four days. At the end of the fourth day, as the water had been lowered a good deal, three of the men went inside the pontoon with me. (Four days of freezing! Think of it!)

"After the sand and gravel had been taken out, a wing dam was placed on each side of the dredge. This dam was built of piles driven down into the river-bed, two feet apart, with three feet in between, which was filled up with scrub and stones. By this means all the river was turned on the dredge, which washed all the gravel from her decks.

"The dredge was all but afloat when the valve spindle on the engine broke, and the dredge sank again to the bottom."

It is a thrilling narrative, with its sudden disturbances, its episode of the man floating about in darkness in the icy water, caulking seams and looking for leaks, its deeds of determination and of courage, surpassing even the heroic endurance of the simple narrative. Rare men these floaters in the darkness of pontoons, borne on lifebelts about their ordinary business in freezing water. How rare may be estimated from the fact that not until the water got appreciably lower, making the inside of that pontoon safer, did the three other men of the dredge offer their help at leak finding. Then the disappointment. Did any one ever hear of anything so stoical as the way the chronicler took his gruel? He just narrates the incident in the plainest language without emphasis as without palliation. Just says that the dredge went down. After all these preparations, and all that waiting, only that and nothing more! Truly the right sort of men these, for we read in this man's diary of a fresh attempt, this time successful, to get that dredge up out of the water, and at work once more on the bosom of Pactolus, raking in the shekels for the shareholders. But we anticipate.

Damaged gear was taken to Dunedin and brought back repaired. With the gear came the orders of the directors of the company. But the position when these things were done had got much worse. Another big flood had come roaring down on the dredge. Logs had come down in thousands and bumped the stout sides of the craft, carrying away much gear, and straining the hulls. Moreover, the pontoons had once more filled with gravel, and gravel was again in command of the decks.

Into the pontoons went the men once more, and by dint of superhuman labour got the gravel out.

The narrator proceeds: "When this was completed, a wire rope tackle was put up and fastened to an eyebolt in the cliff of rocks, the tackle fall was fastened to a hand winch to assist the dredge to rise. When all was ready the pump was started, and the dredge floated that day." There is not a word about the Homeric feast that must have ensued, but the simplicity of the narrative remains unbroken

There followed a period of change, a few months on the West Coast, which seems to have been too much for the gigantic courage of this pioneer, and a sorry time in Dunedin getting rid of the "rheumatics" brought on by all the work in the cold water of the Shotover, and then the man proving indispensable, he was again in charge of the Arthur's Point dredge, our old friend rescued from the 27 feet paddock. But it was not to work the dredge, it was to get her away from the river bottom once more. A big flood had come down while the veteran commander who made so little of floods was absent, and the right thing not having been done at the right time, the dredge got into the old plight without delay, this time not only with her pontoons full of gravel, with piles of the same on her decks, but stove in by the rocks, with one of them sticking up through the skin of one of the pontoons, maintaining communication with the outer world through the river. Here is a touch at this serious juncture in the fortunes of the dredge which is more suggestive than a volume of writing could be:

"I was not in a fit condition for this job, so tenders were called, but no one would take it on."

There were not many giants even in those days.

After the dredge had lain nine months in her new and most uncomfortable bed Mr. Kitto had to tackle her again; there was simply no one else in all that large school of enterprise and hardihood. A start was made in July, and the first point of attack was the rock that had pierced the craft and sent her to the bottom.

"I had to blast this rock in order to put a patch on the hole. That patch was after the blasting, 12 feet by 8. The first boards put on were covered with greasy bags, the other outside covering was caulked, pitched, and tarred. When this patch was finished it was as tight as a bottle. Then I had to put a dam round the flywheel to keep the travelling drift back while the gravel was being pumped from the flywheel. Where the gravel had been pumped out from around the flywheel was filled with sack bags rammed down as tightly as possible. The next thing was to make a water-tight box and force it down through seven feet of gravel and four feet of water to get it to the deck of the dredge, the pump pipe being put inside the box for the purpose. As the gravel was pumped out we forced the gravel box down to the deck, and covered the open hatch Finally the pipes—we had to keep on adding lengths as they got nearer to the water—reached the inside of the pontoon, which was full of gravel."

"When the water was sufficiently low in the inside, three of the five employed on the job went inside the starboard pontoon, and then through a recess which had been cut when the dredge sank the time before into the port pontoon. In the port pontoon we fixed a watertight box under the flywheel of the engine, which had been working through the deck. We then made the hatchway which the pump pipe had been working through water-tight as far as possible. When all the visible leaks had been stopped up we shovelled the gravel to the pump to suck and discharge over the side of the dredge into the river."

"This was a very slow process, as the pump had to lift the gravel 22 feet, and the engine was a small vertical winch engine, and the dredge was lying at an angle of 80 degrees. We tied her down with a network of wire ropes to prevent her capsizing."

The angle proved too much for the boiler, which very soon carried away and went through the ladder on to the other pontoon, and could not be got back to its place for some days."

"As soon as the leaks were all stopped up we cut a hole through the deck of the starboard pontoon to supply the pump with water so that it could be kept running to suck the gravel up, there being no other way of getting it out. Day after day this was carried on for weeks, until all the gravel was finally pumped out."

The next process was to free the deck from the gravel and for that the expedient of making a wing dam and sending the stream in a concentrated current right through was resorted to, the gravel being swept off in a very short time.

"I then had to place two sets of wire rope tackle, one forward and another aft. These tackles were fastened to the cliff above, another tackle being fastened to the fall of the two, the fall of which led on to a hand winch, which enabled me to lift the bow and stern at the same time. As soon as this was ready the pump was started, for what was thought to be the last time, and in about twenty minutes the dredge was afloat."

"But it soon sank again, owing to the pump slipping the water and the dredge having such a heavy list to starboard."

That ought to have been enough, and for anybody else but these dredge body snatchers would have been more than enough. All these men did was this:

"We had to reset the engine and pump and pipes, and this took us three days."

The natural result of such heroic effort came soon, however. The dredge floated at last and got to work.

She was next attacked by a storm of a different character—a financial storm very obstinate and difficult. Against that storm all the energy and enterprise, all the pluck and endurance, of these stubborn fighters were unavailing, and the dredge had to be laid up. The skipper, however, remained in charge of the craft he had wrenched from the jaws of destruction.

But the river had not forgotten. It watched and waited till all the men were paid off and the dredgemaster was alone on the craft. It remarked how he made all the hatches safe, saw the peculiar look he threw into the water and around, a look of suspicion, distrust, and courage, ready for every emergency.

The wind brought up clouds, great banks of them laden with supplies for the flood the river meditated sending down on the solitary skipper. When the clouds were banked in an enormous mass they broke, and the river flew at the dredge and its fearless skipper.

He says in his diary: "As the river was rising fast I was on board and had steam up; the dredge was rolling terribly, and when I got up on the boiler to turn on steam to drop the ladder so as to steady her a bit, the port bow line carried away and she swept on to the rocks. The shock nearly knocked me off the boiler. Recovering, I saw the craft was held broadside on to the current by the port stern line.

"I rushed round to the winch in order to let this line go. I was up to my knees in water, because the water was running over the decks. I put on all the ejectors to keep her pumped out, and felt good when I thought of the hatches all so snugly battened down.

"That being all I could do alone, I tied the whistle down, hoping my two brothers, working somewhere within a few miles, would hear the continuous scream and look me up. My brother Harry was already on the way. He knew the river and he knew the dredge, and he knew me. So he just got to doing time on the road. As he was doing it he heard the whistle and he bettered his time."

At this point of the dramatic situation one expects details. But these fighters have no room for anything but fighting in their compositions. All he says about this Homeric moment is this: "After a little trouble and a good drenching I succeeded in reaching the shore by his help."

Only that and nothing more, except as to business. For he recognised that the dredge had to be floated again.

"We then took a wire rope, went across the chair and made it fast to the side line that had carried away. As the river was falling rapidly we went on board to pull her off the rocks. All to no purpose. She sat on them hard and fast. We struggled till dark but could not make her budge an inch.

"We knew there was no water in her, but we knew also that the rocks would go through her bottom. So with heavy hearts we left her to her fate. In the middle of the night we heard a loud crash. We knew that the rocks had pierced her once more and felt that she sank once again to the bottom.

But the skipper felt that he must have another turn, as well as the river. "A few days later," says he, "I undertook to float her again."

The struggle was of the old, hard kind. A big rock through the bottom of the dredge had to be blasted, a patch made over the open hole, and the jagged opening made good with caulking and plugging and the other things known to the dredgemen; five ejectors were put on and the muscles and brains of the dredgemaster and a new crew pitted against the river in the old way. That they won will not surprise the reader of these few lines. Of course they won. These men who go to their work when the storms blow and the floods rise, and the waves break across their roaring path; who take on the fight with a monster flood single-handed, with a screaming whistle to let the world know that help will be welcome, and after saving themselves from the most awful death "after a little trouble with his help" that comes along at the right moment, never think of giving in, but return on board to have another tussle with the river, and, being badly beaten, take on the contract to get that dredge afloat again. Of course they win.

"I have raised six sunken dredges," says he, in the tone of a man who tells how he has picked up a sixpence from the floor, "and I have never failed in any of my undertakings." At that point we will leave him, without further corroboration.

The Pennsylvania railroad propose to build the largest bridge in the world, connecting the mainland of New York with Long Island. With the approaches it will be three miles long. The greatest span, over Hell Gate Channel, will be 1000ft. long. The bridge will be 140ft. over the water, permitting the passage of the tallest vessels. The entire structure, except the piers for the arch, will be of steel, having an estimated weight of 80,000 tons. It will have four tracks, two for passenger trains and two for freight. The estimated cost is between £3,000,000 and £4,000,000.