

# BY AN OLD HYDROGRAPHER

## 'As it Was'

It is hard to imagine today that there was once a time when no side scan or multi-beam sonar existed to cover the entire sea bottom. Even after the echo sounder had taken the place of lead and line, sounding tracks lay a hundred and more metres apart, depending on the scale of the survey. Sonar was used, however, to detect obstacles where the bottom was covered with rocks or reefs; the area between the lines could only be claimed to be safe for navigation after a wire drag or wire sweep.

The method used in Netherlands New Guinea since 1953 found its origin in the former Netherlands East Indies (now Republic of Indonesia) in 1932. At the beginning of the 20th century surveys there had a difficult start. The Hydrographic Department of the Royal Netherlands Navy, responsible for the production of charts, had insufficient means to survey their vast area of responsibility. Ships made available were old and often there was a lack of personnel. During this difficult period a call for assistance was made upon the *Gouvernements Marine* (lit. Government Navy), which was a non-military organisation under the Department of Shipping. Until the outbreak of World War II its officers and men had a large share in surveys carried out in the East Indies.

It was one of their masters, Ph.A.C.Th.Knijff, in command of the survey ship *Orion*, who carried out the first large-scale wire drag operations. In fact, the organisation and execution of this project lay for a great part on the shoulders of Second Officer F.Wempe. His Guidebook was "Construction and Operation of the wire drag and sweep"™ by LtCdr J.H.Hawley, published by Washington Government printing office in 1925 as special publication nr.118. The US Coast and Geodetic Survey had carried out their first project in Alaska in 1910.

Two motor vessels (length 17 metres, draught 1.3 metres) were made available and soon their work proved to be a success. Large areas were covered before the outbreak of the Second World War.

When after this war Rear Admiral Th.K. baron van Asbeck was put in charge of the Hydrographic Service he had almost to start afresh in organising his Department. This included the construction of new ships and the writing of new instruction books. Fortunately, he could depend on the assistance of the former officers of the *Gouvernements Marine* who had been recruited as cartographers and special service officers (survey). One of these was the cartographer Ph.A.C.Th.Knijff. One of the special service officers was Jan de Wit, a name mentioned earlier in this column.

Together with the two new survey ships *Snellius* and *Luymes*, four motor vessels were constructed for wire drag operations; two for the North Sea (wrecks) and two for New Guinea (mainly coral reefs). The centre for wire dragging lay in the western part of this country, leading from the port of Sorong, through Straat Selâ into a vast area west and east of the entrance of the strait. The object was to provide a safe entrance for shipping in general to Straat Selâ and to permit tankers a safe passage to the oil terminal in MacCluer Gulf. Many surveyors will remember the long periods spent there, mostly in the months during the change of seasons, when the sea was calm.

After floating beacons had been laid out and measured, *Snellius* or *Luymes* found an anchorage in the area. A buoy, generally used to cover bottom tide gauges, was laid for mooring the two wire drag vessels (Dutch: dregboten), one behind the other. Their length was 20 metres, draught 1.60 metres and they measured 40 tons. They were equipped with two engines and carried buoys and wire for dragging. Each vessel carried half of the maximum gear: twelve sections of 120 metres each. Details are shown in Sketch 2. As their speed was not allowed to be more than 1 1/2 - 2 knots, it was important to make use of the (tidal) current, the direction of which fortunately coincided for the greater part with their general course.

Two vessels seldom handled more than twelve sections. Where not many obstructions were expected, a sweep was made with 24 sections, the ship towing a large middle buoy and the smaller vessels covering twelve sections on either side.

At regular intervals the depth of the gear was tested. The least value of the complete run represented the dredged depth. After reduction from the predicted tidal curve, it could be decided whether the charted depth was within the allowed limits. In general the wire was set at such a depth that the tidal movement was taken into account. When shallow parts had to be checked with a few sections at a depth set with little to spare, it could become necessary to change the setting. The gear was not recovered, but the job was left to the testboat.

Occasionally, Naval Staff questioned the Hydrographer about the time spent on this work. No better answer to this could have been given than the discovery of a shallow reef of 2.5 metres some twelve miles WSW of Jef Joes, in an area with an average depth of 30 to 35 metres. These operations took place more than 40 years ago. Though I have been well aware of the developments over the years, it was fascinating to watch the use of the electronic chart and the results of multi-beam and side scan sonar during a few hours sailing on board *HNIMS Snellius*. Spending time as one of the guests onboard this splendid new ship at the time of writing this article, I found that the contrast could not have been greater.

### Further Reading

F.C. Bakker Dirks, *De Gouvernements Marine Part III*, Uniboek b.v. 1986.

