

SOUNDINGS INTO CHARTS

WHEN *The Listener* came ashore from the survey ship *Lachlan* with the story about its work, which was printed a fortnight ago, it found that Commander Lowry, who is in charge of the survey, was coming ashore, too. As a matter of fact, he said, he was going to the Hydrographic Branch of the Navy Office, where the charts which mariners use are produced from the data supplied by the *Lachlan*. Perhaps we would like to come along?

In a bright room at the top of some very dark stairs we met G. A. Thorn and R. Evins, who came here from England in 1951. As hydrographic draughtsmen for the Admiralty, said Mr. Thorn, they "covered the whole world." At first their work here was done with the Lands and Survey Department, but within the last week or two they have moved over to the Navy Office—a change of the sort that has taken place in other Commonwealth countries, too.

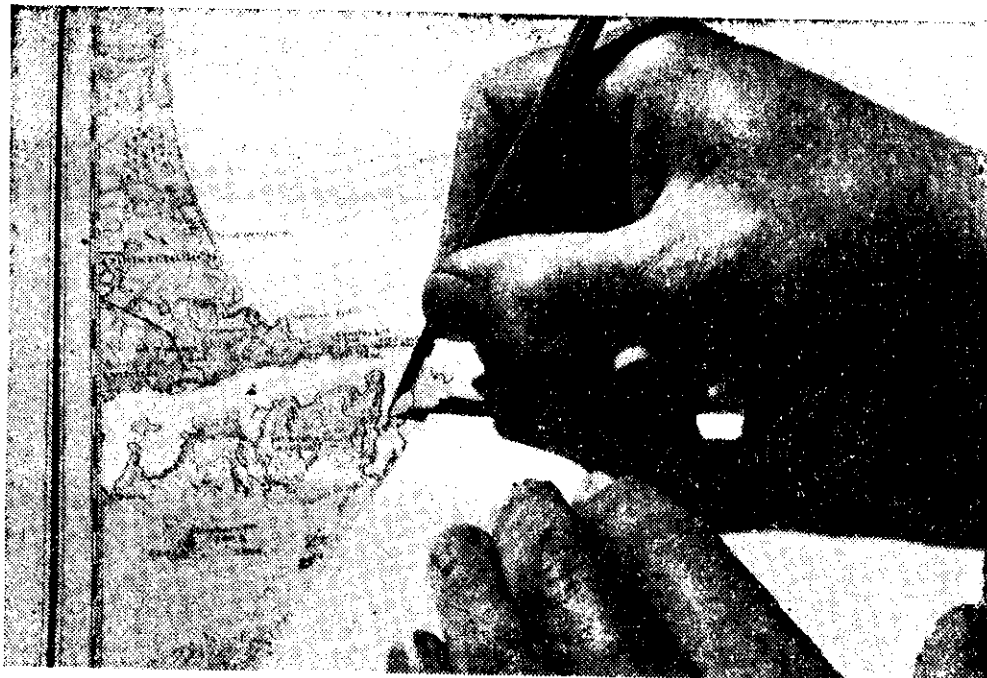
"Our main job here is to compile and supervise the printing and publication of hydrographic charts," said Mr. Thorn, "and since these are most used by overseas shipping they have to conform to international standards. The rules used in this work in Commonwealth countries—he reached for a hefty volume—"are the Admiralty Chart Branch Orders. As you'll see, they cover every detail, right down to the standard slope of chart lettering and soundings. In interpreting these rules Admiralty experience is vital."

Though the Hydrographic Branch gets from the *Lachlan* everything that might help in compiling a chart, the main hydrographic information generally comes in the form of a "collector"—a chart on which all information gathered by the ship has been collected. However, the draughtsmen must also use the "plotting sheet," which shows fixed points used in the survey, since this is

the only record made on the ship which has a completely accurate base. This base is "astrafoil," a non-distorting plastic material, which is used also for all the final drawings made ashore.

With the facts in hand, how then does the hydrographic draughtsman set about his task? Mr. Thorn considers the selection of detail to appear on the published chart the most important of their responsibilities. "The chart is for a special purpose—navigation," he said, "and the mariner doesn't want it cluttered up with a lot of detail that doesn't interest him. So we select items necessary for the purpose of the chart with only enough 'padding' to complete the picture. We don't produce a map, but we do show, for example, the principal communications ashore. From the topographical information in the chart the mariner should be able to decide what sort of country he's visiting—whether he's likely to be eaten by cannibals as soon as he lands or whether there's, say, a railway line running along the coast. Some of the older Admiralty charts actually have notes warning against dangerous natives.

"The mariner doesn't want to see, either, every sounding taken by the survey ship or there'd be no space on the chart for him to plot a course—he wants to see a bit of paper as well. The art of selecting soundings can't be reduced to a set of rules—it comes with experience, and that's where Admiralty training is again of great value. We begin by showing all dangerous shoals and after that soundings in important channels or 'leading lines'—that's the course sailed by a vessel when, say, the



★ THIS close-up shot, showing place-names being inscribed by hand on a South Island coastal chart, indicates the fine work required of the Hydrographic Branch draughtsmen ★

two 'leading lights' of Wellington Harbour are in line. The aim in selecting soundings is to show the features of the ocean bed—the bottoms of the valleys as well as the tops of the hills. In shallower water the density of the soundings shown is greater; in fact, you should be able to tell from a glance at a chart by the density of soundings where the shallower water lies." Mr. Thorn had been illustrating his points by indicating soundings which he had ringed on a "collector" for inclusion in the final chart, and he paused to remark that too regular spacing of soundings was the sign of a bad chart—too much attention had been paid to appearance and not enough to representing the features of the ocean bed.

Navigational aids are also carefully selected according to the scale and purpose of the chart. "For instance," said Mr. Thorn, "in a coastal chart we show only the lights used in making port. After that a harbour chart takes over. We don't tempt a mariner to use a coastal chart for a purpose for which it was never intended, as we would if we included lights that belong to a harbour chart."

The topography used in hydrographic charts is taken from Lands and Survey Department maps, and the information to be used is selected after the map has been photographed down to the same scale as the chart. This information includes heights and names of principal hills which can readily be seen from the sea, which serve as identification marks or could be used to make a "fix." Built-up areas and communications are also shown, and on larger scale charts, such as that of Wellington Harbour, details like hospitals, the observatory and the Botanical Gardens are included.

From time to time the findings of the *Lachlan* affect information in the *New Zealand Pilot*, published by the Admiralty, and these are all promptly reported. This new information and the relevant entry in the *Pilot* are taken into account by the draughtsman when preparing a chart, as it is important that anything described in the *Pilot* should be readily identified on the chart. In the same way information in the *New Zealand Nautical Almanac*—which contains data about ports—is taken into account when new harbour charts and plans are being compiled.

When all the information to go on the chart has been selected, the chart

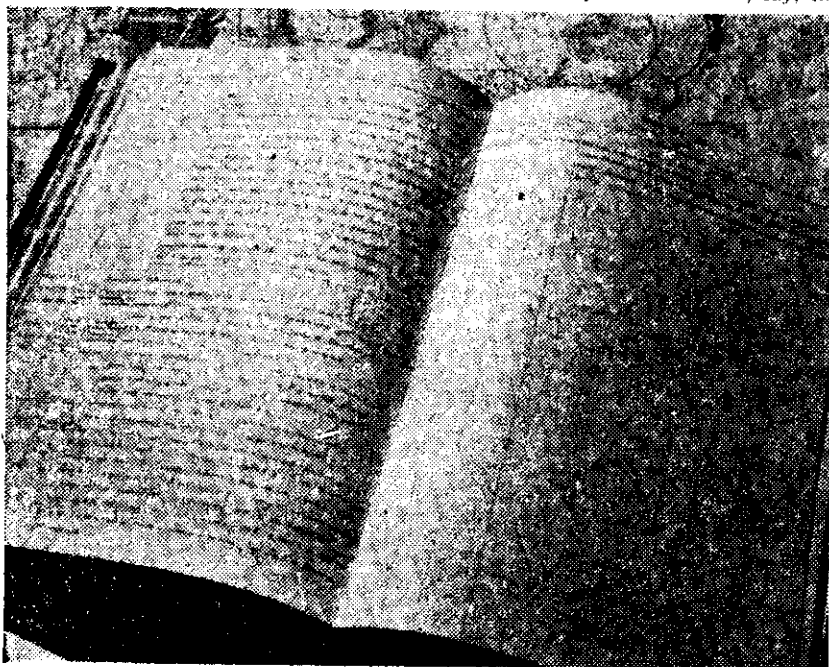
itself is prepared, first in the form of a compilation drawing. This, said Mr. Thorn, might be described as a "rough draft," though it was clear from the sample he showed us that he was using "rough" only in the most relative sense. "The compilation drawing, which contains all the information to appear on the published chart, is transferred photographically to a sheet of astrafoil in a pale blue which serves as a guide to the draughtsman but does not photograph a second time. The whole chart is then carefully drawn on the astrafoil in a manner suitable for photo-lithographic reproduction. Most of it is drawn by hand, though there are short cuts we take—tidal tables, the compasses and certain other information are printed and waxed on to the final drawing. These 'short cuts'—we have even used sounding numerals prepared in this way—are either set up in type or drawn in a larger size and photographically reproduced."

When we asked Mr. Thorn about the skill required to draw the lettering on the chart he admitted that it was "quite hard" to do and that even a person with natural ability would need to spend at least three years working on charts before he could do it really well. "Most hydrographic draughtsmen and many surveying officers are interested in art as a hobby—both Mr. Evins and I are members of the Wellington Art Club—and many of the views of coastline drawn by surveying officers are beautifully done." Mr. Thorn explained here that where a view could be of real help to a mariner it was included on the chart. A drawing which Mr. Evins had just made from photographs of Banks Peninsula would go on the appropriate chart when its detail had been further discussed in the *Lachlan*.

The final drawing is seen by Commander Lowry, and when this is photographed he sees also a print from the negative before the printing plates are made, though alterations made at this stage are few and slight. A draughtsman

(continued on next page)

N.Z. LISTENER, AUGUST 21, 1953.



N.P.S. photograph

THE HISTORY—to date—of the Wellington Harbour Chart, first published in 1951, is summarised on these pages of the Histories Book