

### METHOD OF IMPROVING POOR QUALITY LEAD-LINE.

(Extract from a letter from W. J. CHOVAN, Jr., H. & G. Engineer, U. S. Coast and Geodetic Survey, published in the *Field Engineers Bulletin* No. 7, U. S. Coast and Geodetic Survey, June 1934.)

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I was in charge of a chartered launch hydrographic sub-party this season on the outside coast of California and considerable difficulty was experienced during the first part of the season with wire core sounding line, although the lead-line was prepared according to Hydrographic Manual instructions.

The irregular shrinkage and protruding of wire core made the lead-line useless after about two days' usage. It was thought at first that this particular lead-line was just an inferior piece of cordage, so another line, called lead-line No. 2, was prepared and found to act in a similar manner, being unfit for further use after only two days of service.

The irregular shrinkage of the lead-line put doubt on the accuracy of the soundings and the protruding of the wire core raised havoc with the leadsmen's hands. In order to protect their hands, the leadsmen would snip the protruding wires, and at such spots the cordage would stretch enough to produce a gap of one full inch in the wire core. This is partly the cause of the irregular shrinkage.

I decided that if the cordage could be shrunk before being made into a lead-line it might hold its length. Accordingly, a line was boiled for about five hours, then laid loosely on deck until it was thoroughly dried. The line was then immersed in cold water for one hour and marked.

This line was called lead line No. 3. It was used steadily for over two months and finally discarded as worn out. During this period a morning, noon and evening test on each working day showed the line correct. During the balance of the season all lead-lines used were prepared as outlined above, and the results were uniform in each case, the lead-line retained its true length during its entire useful life.

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### PLOTTING THREE POINT FIXES WITHOUT THE USE OF A PROTRACTOR.

by

L. D. GRAHAM, HYDROGRAPHIC AND GEODETIC ENGINEER, U. S. COAST AND  
GEODETIC SURVEY.

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Although several reports on this same subject have been previously submitted, this method does not yet seem to be in general use. Many field officers are unfamiliar with the details of plotting the position arcs under various conditions, such as when one or more of the signals fall beyond the limits of the sheet, and also fail to realize the value of this method due to never having seen it in actual operation. Owing to the accuracy of this method, and the fact that stronger fixes are available by using signals beyond the limits of the sheet, this method of plotting should find a much wider use in the field.

For these reasons I am submitting, in considerable detail, methods used by us on the southwest coast of Palawan during the season of 1933, where shoals abound for a distance of some twenty miles offshore and detailed development was required at that distance.