

LITHOGRAPHIC PROCEDURE FOR REVISING THE NAUTICAL CHART

U. S. Coast and Geodetic Survey.

The nautical charts of the United States and territories published by the Coast and Geodetic Survey are revised frequently to provide the latest information in hydrography, topography and aids to navigation.

When material affecting charts is received, it is reviewed, indexed and graphically noted on "standards" (file copies) of these charts. In the cartographic and lithographic reproduction work of the bureau a majority of the time is expended in the revision of existing charts.

In anticipating such revisions, a buff paper copy of the chart is made in the press at each printing of the chart, to serve as a copy on which to compile and indicate corrections for the next printing. This buff copy on which the revision is drawn in red ink (for distinction) is then termed a "drawing" and is so stamped and dated. On this drawing, only extensive hydrographic and topographic revisions are shown.

For very extensive revision amounting to practically a complete change of topography, a drawing on vinylite plastic is furnished as copy. The transparency of the vinylite enables the cartographer to accomplish his work more readily and economically.

When a new printing of the chart is necessary, a white paper copy of the chart, termed "correction copy", on which the changes to navigational aids, etc. are indicated, and the drawing, are forwarded by the Nautical Chart Branch to the Reproduction Branch as copy for revision.

For reproduction, extensive revisions to existing charts are always made on the wet plate negatives of the chart, as it has been found that whatever the character or detail of the original, it can readily be matched by the negative engraver with tools designed for precision and economic operation.

The following steps illustrate the method of revising the negatives of a nautical chart.

1. The old work, which is to be eliminated because of revision, is painted out on the negatives with a paint that provides a suitable surface for engraving.
2. To avoid any necessity for hand tracing, the revision drawing is photographed, a process plate made from the negative, and a print made from the plate in white ink on transparent vinylite (a plastic which retains size). This print is dusted with vermilion powder which adheres to and changes the white ink to red. This color provides a distinct image when the print is turned over for adjusting to the black painted negative. The area to be corrected is then burnished to the negative, providing a facsimile of the revision for the engraver to follow in engraving the work on the negative to match that which remains unchanged. The burnished impression on the negative is long lasting and retains distinctness during the handling necessary in engraving.
3. The negative engraver uses various tools to accomplish the task; rigid graver for shoreline and heavy contours, swivel graver for streets and roads, fine (pencil type) graver for fine contours, building graver when buildings are required, subdivider for borders and projection subdivisions, mechanical graver for symbols and lettering, sounding engraver for the soundings, electric dotter for the dotted curves, etc. Name changes are sometimes inserted by using stripper film made from type set up for the purpose. This method of revision maintains the quality of the original negatives, permits proper matching of the new work with the unchanged portion, and avoids the necessity of making new negatives with consequent retouching when any other method of revision, such as a return to copper, might be employed. Revising the negatives maintains original size of the printing plate and permits correction and use of existing color printing plates.

4. When numerous changes in names occur that are beyond the scope of the mechanical graver or the use of stripper film, the original negatives are corrected as explained, for all corrections except lettering, then to make numerous name changes, these corrected negatives are process printed to a white opaque vinylite sheet on which the names, from type, are placed in position and new negatives made.

The fidelity and precision obtained in the process print on opaque vinylite as developed in this bureau offers an ideal method for extensive corrections in which the character of the chart may be preserved by engraving the detail on the negatives, and profit by the economy of adding the names, from type impressions, to the white vinylite print.

