

METHOD USED AT THE DANISH HYDROGRAPHIC OFFICE FOR TRANSFER FROM COPPER TO ZINC VIA PLASTIC SHEET

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A natural claim to nautical charts now-a-days is that the reproduction methods should be such that the distortion be negligible.

As a result of this claim more and more Hydrographic Offices now change from copperplates to zinc — or aluminium plates. As a lot of the existing charts are still printed from copperplates the problem is now how the transfer from copper to zinc can be made practically without distortion.

The various countries use different methods. At the Danish Hydrographic Office our experiments have been limited to such which need no camera.

After having tried several methods including the reflex method we have come to the result that the « copper negative » method is the one which best suits our purposes.

The procedure is as follows :

The steel coating of the copperplate is removed and after a thorough cleaning and polishing the plate is inked, using an ordinary roller (rubber) (see Fig. 1). The plate should not be heated as a rather cold plate gives the best result.

The transfer ink is composed of the following three sorts of ink to which is added a special grease. The inks are made by a Danish firm, which is a daughter-firm of the French firm Lorilleux in Paris, and the numbers of the ink are the same as those used by the French firm.

The special grease is one used for many years at our office. The quantities are as follows :

Pennefarve No. 26810	10 grammes
Overtryksfarve No. 28190	5 »
Cellofanfarve No. 24485	5 »
Special grease	2 »

The special grease consists of the following 9 ingredients :

1) Resina colophonium	60 grammes
2) Resina pini flava (Burgunder)	120 »
3) Resina mastix (Mastiche)	60 »
4) Balsamum terebinthina veneta (Larix)	40 »
5) Balsamum styrax liquidus	120 »
6) Cera flava	240 »
7) Sebum (Oxtallow)	120 »
8) Sapa venetus (castile soap)	120 »
9) Aetheroleum lavandulae (spicae)	120 »

The various ingredients should be mixed successively 1) and 2) first, then add 3) a. s. o. It is essential that the solid ingredients be melted and stirred well.

The copper plate should be given as much ink as possible without filling the engraving.

If the engraving is rather deep and sharp one might use a little more of the special grease than mentioned above. If the engraving is worn and flat the amount of grease should be a little less than quoted.

When the inking is done the copperplate is placed in the Deffa machine (see Fig. 2) and the print is taken on plastic (see Fig. 3). The plastic sheets used are Astrafoil 0.13 mm. matte press polished one side. The prints are taken on the « matte » side.

The fresh print is then powdered with lamp-black or bronze powder and dries till next day. On this print retouching can be made with a soft pencil as drawing ink will not adhere to the print owing to the special grease used.

If the first print is a bit weak a duplicate negative is made on plastic and the retouching is then made on this print with drawing ink. The printing plate (zinc) is then made from the (duplicate) negative in an ordinary contact frame. The time needed for the whole procedure is normally 4 days.

The first transfer made by this procedure is mentioned in « International Hydrographic Bulletin » for March 1953. The dimensions of the copperplate (chart No. 93) were :

North frame	650.2 mm.
East frame	968.5 »
South frame	650.4 »
West frame	968.3 »

The respective dimensions of the plastic sheet and the zinc plate are as follows :

Astrafoil : North frame	650.70 mm.
Zinc plate : North frame	650.69 »
Astrafoil : East frame	968.66 »
Zinc plate : East frame	968.53 »
Astrafoil : South frame	650.61 »
Zinc plate : South frame	650.61 »
Astrafoil : West frame	968.22 »
Zinc plate : West frame	968.30 »

Since then other transfers have been made and the distortion does not exceed 0,2 mm.

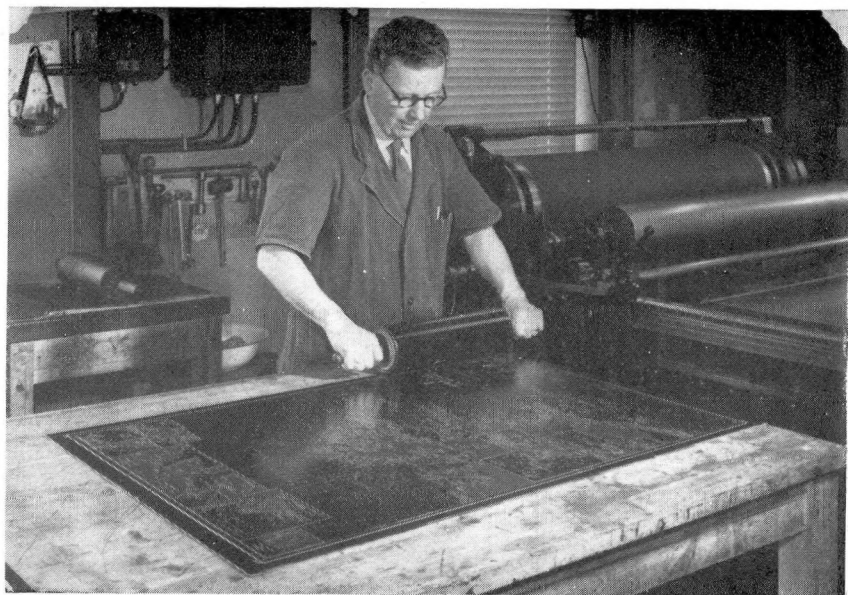


Fig. 1.

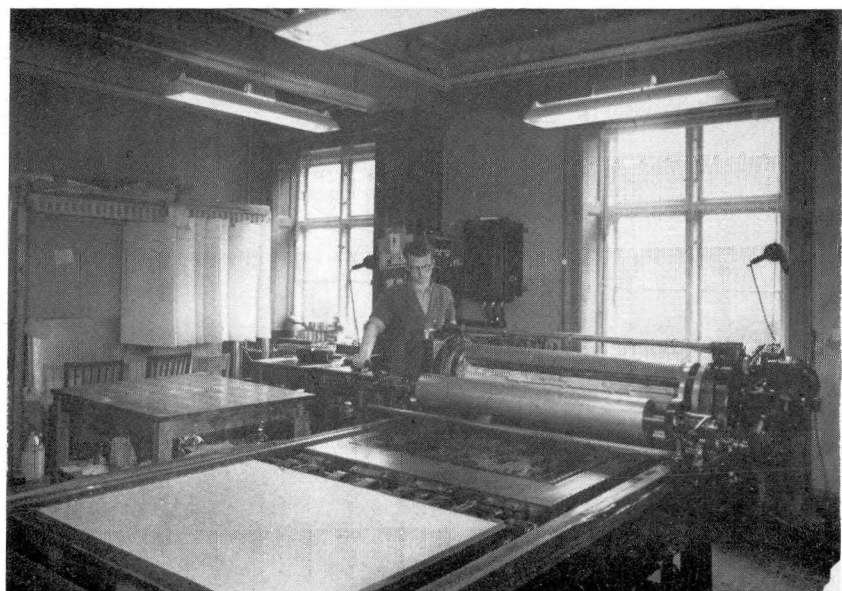


Fig. 2.

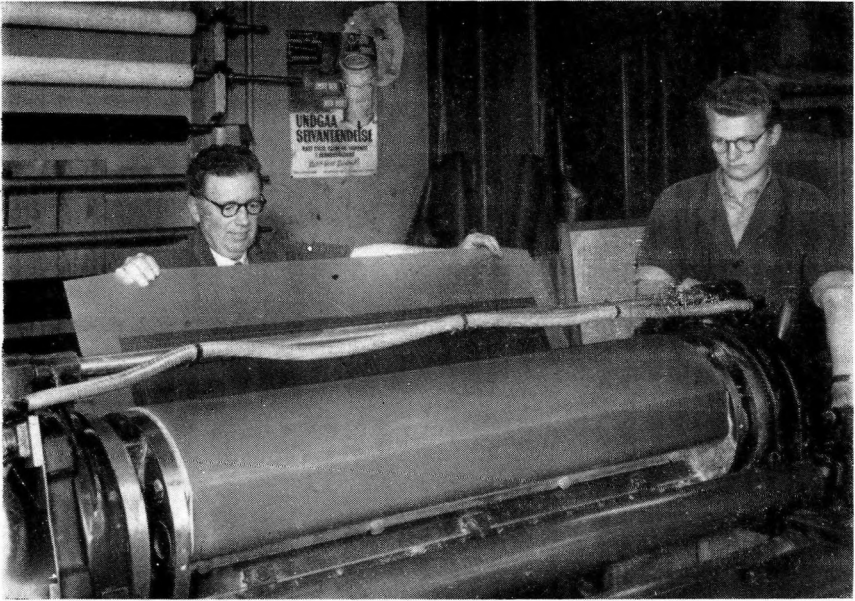


Fig. 3.