USE OF ENAMELLED PLATES
IN MAP DRAWING AND REPRODUCTION.

Enamelled plates were first introduced by the Ordnance Survey in 1936. They result from experiments made in the effort to find a good drawing surface that would not change in size and shape as much as the paper.

Two coats of white cellulose enamel were originally sprayed on the ordinary zinco litho plates, but it was discovered that the addition of a coat of photographic size would prevent chipping and that further coats of enamel gave a thicker layer that made erasing by the draughtsman easier. A satisfactory matt surface was obtained by light graining with pumice powder.

At first some difficulty was experienced by draughtsmen in controlling their pens on the hard enamelled surface, but with practice they were able to draw on it as easily as on paper. One advantage of the new surface quickly became apparent. In erasing or trimming bad lines or letters, there was none of the wooliness that often results after erasing on paper.

The one chief difficulty was in finding a suitable ink, and it has not yet been overcome. Up to now "Watson's Waterproof" has been found to be the best.

While the draughtsmen were learning to use the enamels, other departments were also trying them out. The Helio Section soon managed to produce good images on the plates, and the need for bromides in making up composite plates was consequently practically eliminated ; difficulty had always been experienced with bromide sheets in matching and maintaining anything approaching the right size. In such cases, thin aluminium foil is used as it carries the enamel in a satisfactory manner and is easier to cut than the zinc plates.

The production on enamel plates of ferro-prussiate blues was undertaken, and these were found suitable for the straightforward drawing of colour plates, for road, wood, and other fillings, and for the preparation of tints and layers by processes of gumming out.

The standard of map reproduction has been considerably improved as a result of the introduction at various stages of these enamelled plates, and much time has been saved.

One of the first uses was in connection with the abolition of the old lithographic stone, which was previously used in the reproduction of small-scale maps ; most of the stones carried the latest revisions, but after many years of correcting they were in rather bad condition.

If paper pulls had been made and photographed from the stones, the inconvenience of paper distortion would have been introduced, and endless work in retouching negatives would have been caused.

Enamel plates obviously provided a means of obtaining an undistorted image from the stone, and if subsequently any retouching was found to be necessary, it could be done more easily on the enamel plate than on the resultant negative.

The method used was to transfer the image on the stone to the enamel plate by means of a litho duplicator, and then to give the plate to a litho draughtsman for general overhaul and the incorporation of any further possible revisions. The plates were finally photographed in order that zinc plates for printing purposes could be obtained from the negatives as needed.

In 1939, when the necessity arose for safeguarding Ordnance Survey material, zinc plates and glass negatives became the chief source of anxiety.

To have sent the negatives to a place of safety would have meant that they would not be readily available when needed ; to make paper pulls was undesirable, and zinc plates are apt to corrode when stored. The only possible alternative was the production of helios on enamelled plates.

All the main map series were reproduced in this way and the enamels sent to safe areas. Events showed that this was a wise precaution, as negatives at Southampton actually were destroyed.

At the end of the war the enamelled plates were still in good condition and were used in the reconstitution of our small scale maps.

☒ ☒ ☒