"The early years of the National Grid twenty-five inch map"

John Cole

Sheetlines, 80 (December 2007), pp.58-60

Stable URL: http://www.charlesclosesociety.org/files/Issue80page58.pdf

This article is provided for personal, non-commercial use only. Please contact the Society regarding any other use of this work.

Published by
THE CHARLES CLOSE SOCIETY for the Study of Ordnance Survey Maps
www.CharlesCloseSociety.org

The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, Sheetlines, is recognised internationally for its specialist articles on Ordnance Survey-related topics.
The early years of the National Grid twenty-five inch map
(continued)

John Cole

This article corrects or adds to that in Sheetlines 64, mainly as a result of information and maps obtained this year.

Whilst the appearance of 40(SZ)0598 indicated use of the method known as RP (revision point) compilation, this was not in fact the case. A report dated May 1946 indicates that it was the subject of what was titled the Hampreston experiment. Using the seven control points described in the previous article a careful chain survey was carried out followed by an equally careful completion and rigorous check. The result carried out on an enamel coated zinc plate was deemed ‘virtually correct’. Next, the seven original control points, plus a further nine from the new survey, were plotted on a blank gridded enamel; a trace of the county series 1:2500 map placed over, and detail equated to the sixteen points in the best manner possible. A transparency was then made of the new survey to compare with the rectified old 1:2500.

The comparison showed fair agreement in the more open parts though curved hedges differed by three metres or more. But in the hamlet of Hampreston more serious errors were perceived. The number of errors suggested that some of the points chosen as control were themselves in error in relation to the nearby detail and that by forcing them into
correspondence with the plotted positions, the adjoining detail – not so much in error on the old map – had been forced out of position.

A conclusion reached was that the old 1:2500 could not be accepted as a reliable method of obtaining control for air photos, nor could it be pulled into shape reliably even with the help of a very dense system of control. This second conclusion became one of the deciding factors in favour of overhaul (Cotswold method) in that a minimum of points, usually trigs, could be used to get the county series detail reasonably tied into the National Grid. Objections to obtaining control for air photos from the old 1:2500 were overcome by experiments in the late 1950s (in Flint and Cheshire) whereby careful and sensible graphic plotting from air photos using the old 1:2500 proved better than expected, besides being cost effective.

At the same time as the Hampreston experiment, similar tests of the old detail in the vicinity of the Hampshire/Dorset and Gloucester/Somerset boundaries indicated differences of around three metres (in a north-south direction) in the former area, and around eight metres east-west at the second location, when modern control was applied. Errors appeared random rather than systematic in that problems with the Cassini projection used for the County Series 1:2500 theoretically and practically were small. The Bournemouth area experiments involved 40(SZ)0495 and 0793 though parts (or all) of both may have been published at 1:1250 scale. Those at Bristol may have included ST6470, 6370 and 6371 where RPs close to the boundary appear on the 1:2500 map.

A further experiment in the Avonmouth district of Bristol (not resulting in any published mapping at the time) investigated making photographic co-ordinate measurements in what was known as a stereocomparator and computing the aerial triangulation from this data. From this, a year or so later, arose the Chelmsford method of air survey.

Sheet SJ9300, (left) A edition and (right) B edition
It was stated in Sheetlines 77 that the 1:1250 maps reduced and redrawn at 1:2500 scale lacked only pavement pecks in narrow streets, house numbers and all except major house names. It has since been possible to compare the A (or first) edition of SJ9300 at Wolverhampton, all quadrants surveyed January 1947, with the B edition revised late 1951 and early 1952, the latter map being a photographic reduction. It was clear that at this location substantially more detail was excluded from the redraw of the 1947 map.

Whilst some garden sheds and greenhouses would have been erected in the intervening years, over eighty were absent from the redraw in one block five hectares in area: under ten square metres of building apparently being the cut off point. A large number of short drives in private gardens were missing from the redraw, survivors being at least twenty metres in length. On houses and bungalows, bay windows, porches, juts and recesses were not redrawn, whilst rear outhouse detail attached to main building was mainly generalised. Such vegetation as there was had been retained.

A paper of March 1953 describing the Cotswold method of overhaul stated that although it was mainly applicable to rural areas, it was also possible to use it for small towns when the amount of new development was not great and provided the old 1:2500 survey was generally reliable. The latter not always being apparent until the revision got under way!

A list was given in Sheetlines 64 of a number of towns where revision point surveys were employed to improve the accuracy, as well as National Grid position, of the county series detail. It was suspected that more might come to light but only Bo’ness, Linlithgow, Broxburn (all in Scotland) and Braintree (Essex) have done so.

A further twenty or so large towns, revised by the end of the 1950s, may or may not have utilised slightly less accurate (and unpublished) detail points. At one town, Penzance, they were established but not used for the survey, as the town became one of the first to be graphically revised from air photographs. Subsequently the detail points were usable for an accuracy test of the completed maps (with a very encouraging result). Such fixed but unused DPs for survey purposes figured in accuracy tests of the overhaul in Ayrshire, Northumberland and near Sheffield.

Between 1958 and 1960 accuracy tests of the overhaul took place in several other counties – Devon, Dorset, Derby, Essex, Kent, Nottinghamshire and Shropshire. Map numbers ranged from two in Shropshire to 39 in Dorset, and testing methods ranged from minor control traversing check points (Leicester, Kent, Salop, Notts and Derby); tellurometer and theodolite traversing (Devon); air triangulation points not previously used (Dorset and Essex, where it is thought some of the Chelmsford method air survey was included) and specially flown photography providing points co-ordinated by air trig. (Notts, Derby and another Sheffield block). Results were remarkably consistent with just one exception – occurring not in a replotted county, but in one of the early Devonshire locations. In this case a large area, of county series detail containing a trigonometrical point used to re-compile the map, was out of sympathy with surrounding county series detail. This caused an error in the relationship of the superimposed National Grid to the Cassini detail and this worrying aspect of the overhaul led to more severe gridding tests in later years. The trig. control spacing was up to eight kilometres in Devon and the test result indicated that it should not exceed three (which for economic reasons was not always possible.)

---

1 Over three square kilometres.