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“Some aspects of survey for the 1:10,000  
map”

*John Cole*

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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.

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**Some aspects of survey for the 1:10,000 map**

John Cole

Under the title 'Campaigning At Home', *Sheetlines* 29 (January 1991) contains a stirring article reproduced from a journal of 1885. It is an account of the original six-inch to one mile survey of some of the Scottish islands in which no dramatic ingredient is lacking - adverse weather, treacherous seas and even if the natives were not hostile, the terrain usually was!

My own exploits compressed into the summer months of 1980 are puny in comparison not only in the light of the above but also compared with those of the dedicated 1:10,000 surveyor in Scotland, Wales and Northern England during the 1960s and 70s.

The Ordnance Survey history of operations is, as usual, complex. Of the sixteen original six-inch maps, seven were fully at that scale whilst the others contained one or

more 1:2500 scale quadrant. In addition there were some sixty plus 1:2500 maps of mainly moorland involved and the original survey date for the whole was during the 1880s.

In 1950 the basic six-inch area of the southern part of the moor was enlarged and revised by ground methods and in 1954 the first 'regular' national grid 1:10,560 maps were published. In 1964 the remaining northern portion of the moor was resurveyed - presumably by air survey methods followed by ground inspection and completion, and as in the southern portion the basic six-inch area had been enlarged.

My involvement was with the resurvey of the southern area south of the 80 grid line and arguably the more hospitable portion of the moor. Twelve maps were the subject of the survey (now at 1:10,000 scale) totalling 169 square kilometres and whilst only one was wholly basic 1:10,000 most of the others contained 1:2500 and downgraded 1:2500 which had to be revised for significant changes such as two instances of road alteration and widespread developments in the china clay industrial area.

The usual team of three surveyors and the supervisor, joined by a fourth surveyor due to work in Wales, then embarked on a one month course for which purpose an instructor was dispatched from Southampton. The outside element was conducted during a rather cold and wet April, on a small sector of one of the maps involved - SX57SE, and from my own point of view, the reduction in scale after years of 1:1250 and 1:2500 work took some getting used to.

Although a fairly comprehensive survey (including contours) had been carried out by machine plotting from air photos a certain amount of ground work was anticipated and indeed this proved to be the case.

The basic survey instruments to be used were the plane table in conjunction with a microptic alidade and a graduated staff<sup>13</sup>, a pocket sextant and a prismatic compass. There was also some training in subtense methods using a 3½ inch Tavistock theodolite. Apart from traversing to fix detail, the plane table and microptic alidade could be used to supply additional spot heights and to check or resurvey contours.

Adjudged suitably trained we accordingly set forth with well loaded back-packs (lunch, emergency rations, survival kit, binoculars, minor survey instruments etc.) and sketching case containing map, on the 1<sup>st</sup> of May. The weather marked an abrupt change from winter to spring in the shape of a considerable early morning snow fall and warm sunshine in the afternoon.

As the three surveyors were normally working on their own and not returning to the office at the end of the day a 'reporting in' by telephone procedure was adopted, and on one occasion emergency procedures were all ready to be activated when a surveyor working on the most remote map was late in reporting.

Usually the supervisor (but in one instance the Chief Surveyor for the area) assisted when plane table work became necessary. This appeared to be about once per map in my case and was as follows: SX57NW survey of boundary stones; 57NE survey of range notice boards; 67NW survey of fence; 57SE resurvey of contours in a wooded area; 56NE nil; 56SE survey of new ditch in vicinity of china clay workings.

None of the above implied shortcomings in the air survey plotting (with the possible exception of the contour incident) and in only one instance did it appear that some unnecessary detail had been supplied. This was in the form of groups of small circular objects other than hut-circles which were fairly widespread. The plotting had, in the main,

<sup>13</sup> Superseded in the late 1980s by mini EDM (electronic distance measurement) equipment.

been done or supervised by a former colleague of ours who had worked in Cornwall and he had assumed that they might be evidence of old mine shafts or workings. Subsequent investigation revealed that these were probably craters caused by bombs (possibly jettisoned by allied aircraft) or shells of world war 2 vintage. It was also significant that one of Dartmoor's three military ranges affected the three most northerly sheets.

Apart from a good deal of walking, the completion of the survey presented no serious problem. Archaeological work had been completed at an earlier date and comparison of the 1:10,000 with the earlier 1:10,560 may not reveal great change. The most significant additions are the Dartmoor 'reaves', annotated as Boundary Work. Administrative boundaries had to be perambulated and the mereings revised, and names had to be checked. Some mention of the difficulties entailed regarding the latter was made in *Sheetlines* 47 (December 1996). A single name-book was to be compiled for each 1:10,000 map. In 1950 such a 'book' had been made for each individual kilometre square - a very wasteful procedure leading more often than not to a book containing one single namesheet. There were however many name authorisation sheets (OS230 and 231) which were extracted to include in the new namebooks. We were also provided with the old 'County Series' name books to aid research into queries and a fairly long list of 'new' names to be investigated. As a consequence many were found to be valid, duly authorised and added. Additionally some major positioning and spelling corrections were made, one dating back to 1950 but most to before the turn of the century.

A technical problem which arose was the reconciliation of the 1:10,000 edges with the 1:2500 or the downgraded 1:2500. By far the worst of these occurred in the wooded areas of 57SE and 56NE and the china clay area of 56SE which included a small village. Such problems were exacerbated by the rather unwise downgrading of the 1:2,500 which had taken place in 1950. In county series days only two six-inch maps and parts of four others had been basically surveyed at that scale.

In addition to the resurvey of the 1:10,000 a certain amount of revision had to be undertaken on the 1:2500 or downgraded 1:2500 which, with very few exceptions was some thirty years out of date.

The former having taken some three to four months now gave way to the latter which, in my sector, entailed a further three months work. In the downgraded area, apart from road alterations previously mentioned, this included tracks in the wooded area south of Postbridge and alterations to the granite quarry at Merrivale. On the 1:2500 although there were considerable changes on the maps in the Peter Tavy area, by far the greatest difficulty involved some thirteen maps in and around the china clay quarrying district of Lee Moor, and it proved possible to overcome this with up to date air photography obtained from one of the china clay concerns.

Mention should be made of the most remote of the 1:10,000 resurvey maps SX66NW and NE. The only road approach was from a northerly direction to Whiteworks. Thence on foot avoiding the impassable Foxtor Mires. The southern and eastern portions of SX66NW were reached by means of the trackbed of the dismantled Redlake railway and a four wheel drive vehicle. SX66NE was similarly lacking in vehicular accessibility and at least as far as the resurvey was concerned my colleagues had to walk further than I.

For the benefit of those with a small scales interest in the area, it might be claimed that the one-inch reviser did not walk these parts in 1957 thanks to the large scales revision of just a few years earlier. It was however a different story north of the 80 grid line (the

limit of the large scale work) and a comparison of the New Popular and Seventh Series sheet 175 illustrates this.

There is a curious omission on the derived first series (regular) 1:25,000 sheet SX57 whereby a section of wall from 591771 to 600783 is missing although shown on the 1:10,560. At the smaller scale it eventually reappeared on the OLM.

Whilst in the case of 1:1250 (*Sheetlines* 52) I compared an original map with its successor, in this instance 1:10,000 sheet SX57NE published 1982 is examined in the light of its predecessor at 1:10,560 published in 1957.

The survey diagram of the later map notes that two kilometre squares in the north west corner (5579, 5679) and five along the south edge (5575, 5675, 5775, 5875 and 5975,) were ‘surveyed’ (meaning in this case revised) at 1:2500 scale in 1951 but that they were ‘published but no longer maintained at 1:2500 scale’.

Most of the alterations to detail were of a minor character. Traces of two old tracks had vanished although the whole of one and part of the other appear as bridleways on the Outdoor Leisure Map of Dartmoor. On the 1:10,560 the southernmost sections of the Cowsic River, Blackbrook River, River Walkham and even the Prison Leat are represented by double lines. Their shrinkage to single lines on the modern map points to changes in OS rules rather than climatic conditions.

In the extreme south western corner the B3357 (formerly A384) was resurveyed at Merrivale Bridge and there are various changes to the fields (belonging to HM Prison at Princetown) along the southern edge.

Of the archaeological sites 19 were resurveyed and in many cases the description altered, ten added and three obsoleted.

Administrative boundaries were perambulated and as opposed to the 1950s mapping, their mereings are shown.

Bench marks shown previously only at 1:2500 scale have been published at 1:10,000 and in the moorland area (and also the prison fields) many extra spot heights were determined by air survey with just one by ground methods, retained from the 1:10,560. Nine new and six edge names have been added. Five were obsoleted. Two altered positionally and one has had its spelling altered. Two of the last three are traceable back to the turn of the century. On page 125 of his celebrated ‘Guide to Dartmoor’ published in 1912, William Crossing writes ‘Mis Tor Pan is undoubtedly the large rock basin<sup>14</sup> on the mass of granite forming the southern part of the pile and yet by some strange mistake the name has been affixed in the Ordnance Maps to Mis Tor Marsh some third of a mile to the NE of the Tor.’ Crossing makes more than a dozen references to OS maps in his work and is generally complimentary saying at the outset (page 8) ‘The latest Ordnance Survey maps and maps that have been made from them, are the only ones that are reliable. Those published before 1884 are of very little use, being full of inaccuracies.’ Nevertheless he pinpointed the above mistake and also the curious misspelling of Cosdon Beacon<sup>15</sup> in the northern part of the moor. The misspelling of Rendlestone (Rundlestone is correct) also dates from the nineteenth century OS map but the incorrect repetition of the name Holming Beam inside Long Plantation appears to date from 1950. No reasons for these mistakes were ever clearly established.

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<sup>14</sup> Rock basin: a hollow in the granite on many tors. Formed naturally by the action of frost, rain and wind.

<sup>15</sup> Thought to have been corrected on the one-inch revision of 1980. Until correction it had appeared as Cawsand Beacon

One of the obsoletions is worthy of comment. The 1980 1:10,000 maps and subsequent OLM of Dartmoor are the first in the area to show reaves as an archaeological feature, annotating them “as has been mentioned as Boundary Work”. At grid reference 5578 on the 1:10,560 appeared the name ‘Lanson Moor Reeve’ which was obsoleted on three counts. ‘Lanson’ is a local pronunciation of the word ‘Launceston’ which had applied to Launceston (altered to Langstone) Moor in (apparently) 1950. Reave is misspelt and in any case the boundary work involved (not depicted in 1950) falls just over the map edge at 5478 in SX57NW! In view of this confusion it was deemed wise to drop the name.

Finally there is considerably more height information supplied on the 1:10,000 map. Many additional spot heights determined by air survey (and thus shown in orange) appear, whilst bench marks and their values are shown in the downgraded 1:2500 areas.



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<sup>1</sup> *Sheetlines* 53, p53.

<sup>2</sup> M.J.Stacey, private advice of submission to *Sheetlines*.