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 transformation of the Ordnance Survey under Colby: a view from the Fens"
R C Wheeler

Sheetlines, 76 (August 2006), pp.46-51
Stable URL: http://www.charlesclosesociety.org/files/Issue76page46.pdf

This article is provided for personal, non-commercial use only. Please contact the Society regarding any other use of this work.
The transformation of the Ordnance Survey under Colby: a view from the Fens

R C Wheeler

Letter-books are marvellous things. To have both sides of the correspondence between the central direction of an enterprise and its executant agents gives a tremendous insight into the practical problems faced, the compromises, and the characters of the principal actors. In contrast, the formal minutes of a governing body usually leave one struggling to read between the lines. This is particularly true with so many early nineteenth century minutes where the clerk has austerely restricted himself to recording corporate acts and decisions, padded out with such legal verbosity as the repetition of verbs in subjunctive and indicative moods: ‘Resolved that the meeting be and hereby is adjourned to the Peacock Inn …’

As an extreme example of such austerity one could cite the minutes of the General Assembly of Proprietors of the Witham Navigation,¹ held on 26 June 1817. The Witham Navigation was a commercial company set up by Act of Parliament, much like a later railway company, but the assembly of proprietors (i.e. shareholders) was supreme and the day-to-day running of the company was entrusted to an unpaid committee of leading shareholders. By June 1817 the company had run out of money and the committee proposed to leave the work half-completed. The General Assembly directed the committee to produce a breakdown of expenditure against the heads of the original estimate by the engineer. That was a decision, so was recorded in the minutes. The fact that almost the entire committee resigned and no one could be persuaded to replace them was not a corporate act so was not recorded. One only learns about it because the surviving couple of members took legal advice on how the company could extricate itself and continue to function.

Letter books are so much more informative, even if only a portion of the correspondence is preserved – as for the collection of John Rennie’s correspondence at NLS. He was the Witham engineer, and a very hands-on one, despite his many grander works.

Fortunately, the OS Letter Book² appears to be a complete record of the correspondence between the central direction at the Tower and the surveyors in the field; furthermore, geographical separation meant that supervision was being exercised almost wholly through this correspondence. Admittedly it only covers a limited period, the early 1820s, with occasional copies of earlier material. Conveniently, this covers the survey of Lincolnshire.

There are 32 surveyors who are known to have produced drawings for the Old Series,³ so it is easy to gain the impression of a massive corps at work. However, during the period 1820-22, only seven surveyors were active. Of these, four ceased work during the period, and one started (only to cease work in 1823). So, for the preservation of the skills that had been developed, the Survey depended on two individuals, Robert Dawson and Henry Stevens. Dawson had nothing to do with Lincolnshire and deserves a fuller study than can be afforded here, so I start with Henry Stevens. Despite having been around since at least 1808, Stevens was still in the fifth class, receiving a salary of £91-5s p.a.⁴ However, surveyors also received

---

¹ TNA RAIL 885/1.
² TNA OS 3/260 – henceforth OSLB.
⁴ OSLB, p 134, 3 April 1817.
the very substantial payment of 33s per square mile (out of which they had to meet all their expenses) and these sums tended to be much larger than a surveyor’s salary.

Stevens was a good surveyor, perhaps inclined to produce a little more detail than the engravers liked, especially in towns\(^5\) or where unfenced roads passed through closes.\(^6\) He was innovative in style: modern commentators have commended him for his introduction in this period of a style of open lettering filled with grey wash for parish towns; since this lettering merely replaces the normal Roman or ‘print’ lettering, to which the engravers would revert, one can argue that it was pointless elaboration. He also found a method of employing an assistant which allowed him to be confident of the quality of the final product, in that the assistant only did work where any error could easily be spotted by the surveyor.\(^7\)

The letter book opens with correspondence about Stevens piece-work claims and which bills related to which plans. The rate at which Stevens submitted plans was confusing the system. It was also alarming Colby, who wrote to Capt Mudge (8 Aug 1820)

I am not aware that Mr Stevens ever had authority to employ any one besides Mr Skelton. From the quantity of work he has done, I much fear that order [of Gen. Mudge against unauthorised assistants] has been disobeyed; and it may be well for you to caution him against future disobedience in this respect; because if I discover that any part of any plan has been performed by a person unauthorised by us … I will most assuredly reject the plan.

From what happened subsequently it would appear that this was not passed on to Stevens.

Much of the correspondence revolves around Stevens’s desire to do his fair drawing away from the area he was working on. On 14 August 1820, he sought permission to do this at Shrewsbury ‘as I left a great deal of property there which I am anxious to have under my own care’. Stevens had been working in Shropshire before he was moved to Lincolnshire, but his tone suggests an entanglement greater than a mere travelling chest. He was told he must send some corrections first, as his survey (OSD 280) differed from that of Budgen where it overlapped. He sent these on 23 August, noting (plausibly) that he believed the marsh was dry when he surveyed it and wet when Budgen did so – he tended to stand up for himself when his accuracy was doubted. We hear no more for a while so presume he went off to sort out his affairs at Shrewsbury.

On 25 December, he writes again from Lincoln,\(^8\) explaining that ‘For the sake of my Children’s health and the advantage of having them near to their Friends,\(^9\) I mean them to receive their education in the West of England’ and seeks permission to draw his plans there ‘as it will give me an opportunity of seeing them settled’. It would appear that the ‘West of England’ here refers to Cornwall. Permission was given on 28 December.

A similar request the following year comes somewhat earlier, on 6 November 1821. Stevens has been ill ‘in consequence of having slept in a damp bed’ and seeks permission to collect ‘many things necessary’ for drawing an earlier plan that seems to need further work, and then on to Cornwall in order to see his children. Colby had more important things on his mind. He writes on 12 November:

---

\(^{5}\) See my remarks on his plan of Lincoln, Sheetlines 66, 7.

\(^{6}\) OSLB, Budgen to Colby, 8 April 1821, shows that Colby expected fine detail under such circumstances.

\(^{7}\) Sheetlines 66, 33.

\(^{8}\) Stevens tended to have a single base when in the field, even at the cost of greater travelling time; Budgen in contrast lived out of a suitcase, so to speak. Unfortunately, Stevens’s precise address at Lincoln does not appear in the letter book.

\(^{9}\) At this date, in such a context ‘friends’ means relatives.
I have learned with considerable sorrow that ... you have employed a person in surveying & otherwise for 4 Ordnance Plans in Lincolnshire without my official permission. ... No future breach will be permitted to pass unnoticed by the Master General.

Leave to visit Cornwall is granted but is conveyed by Mudge, no doubt lest it soften the reprimand. Stevens stands up for himself again: when at Lincoln, he had informed the late General Mudge that he had and did employ an assistant and had been told that he ‘was employed in the exact discharge of his duty’. So armed, and ‘knowing that ‘Mr Stanley had Master Skelton’s assistance and Mr Dawson his nephew, I did not consider I was doing wrong’; furthermore, he ‘never put it in the power of an assistant to injure’ the accuracy of the work. He doesn’t have an assistant at present but seeks authority to employ ‘Mr William Stevens, who has been employed on the service with me previous to his going to the Royal Military College’ during the next summer vacation. Colby refuses, principally because he does not have financial authority to increase the amount of survey work done.

In the event, any budgetary worries that Colby may have had will have been resolved by Stevens’s failure to take on any more OSDs until 1828. Either his illness was worse than he thought, or perhaps he found home and family so much more agreeable than being harassed by Colby.

Let us turn now to Charles Budgen, also at work in Lincolnshire. He was more senior, having been employed as a surveyor since at least 1799. He was also better paid, at £136-17-6d per annum. Without doubt he was less capable as a surveyor than Stevens. His greatest fault, though it was one that only came to light when hill-sketching started, was inadequate sketching while making traverses along the roads. Thus, features which crossed the roads, like streams, were joined up when he drew his plans; whether the bridge on one road was linked with the right bridge on a parallel road seems to have been left to luck.

This problem seems not to have emerged within the period of the letter-book. Colby complained chiefly because Budgen’s plans did not agree with those of Stevens at a join, or because he had omitted features, like buildings, that should have been shown, or because the gentry were complaining.

Initially though, it was Budgen doing the complaining. He was surveying Misson, on the Nottinghamshire / Lincolnshire border and found that the boundary was so fractured as to be impossible to draw. Even the lawyers, he observes, refer to ‘the parish of Misson in the County of Lincoln or Nottingham, or in one or both of them’. He also encountered the local practice of ‘warping’ or deliberately flooding low lands in winter. This greatly enhanced soil fertility and greatly impeded survey.

His real bugbear was OSD 279. This had been made by him some years before – he implies 1813 in one letter (28 June 1821), when the rules were different. Indeed, General Mudge had arranged for him to borrow detailed drainage plans from Sir Joseph Banks and from Lord Fortescue’s steward. His assistant had reduced them to the two-inch scale and he had then matched them to the framework he had surveyed based on the through roads and the embanked drains. Buildings had been inserted from the tracings, because he could not get them to agree with those in his field books and thought it better that his map should ‘agree with the Plans in the hands of the Commissioners of Sewers’ – not a very convincing argument.

---

10 Sheetlines 66, 5.
11 Through roads because they allowed a closed traverse, embanked drains because the drainage authorities owned the embankments and will have readily granted permission for a professional man to pass along them. In this area, both roads and drains have long straight sections and could have been traversed quite quickly.
Colby’s approach, as usual, was to start (21 February 1821) with an absolutely devastating demand: because many buildings had been omitted, the plan should be re-done. Capt. Mudge followed this up with an equally unhelpful letter: if any parts of any of his plans had been copied from other sources, he should ask for them to be returned to him so that he could re-do them. Budgen’s aim was to have the demand reduced to a request to re-survey specific features:

which I trust you will have the goodness to point out by drawing a line with a black lead pencil at the place or places that I may be enabled to correct the whole without danger of having to return so great a distance or having my mind afterwards distressed and being put to such a heavy expense.

Since Colby was relying on a small sample check made by Lt Robe, this was exactly what he did not want to do. Meanwhile, Budgen was reduced to probing Colby’s mind by protesting that ‘it is customary … to leave out Hay Barns and all kinds of Sheds that are built on posts without foundations’ (2 March) and then (22 April) providing a fascinating account of the process of woad manufacture – done from booths in the fens which were moved on after a few years. This at last produced a specific answer from Colby (25 April): ‘The Omissions I alluded to were not buildings in the Fens but Houses by the side of the Turnpike Road and therefore visible to any person who has the smallest knowledge of maps.’ That was all that would be forthcoming so, as Budgen reports on 7 May, ‘I go along every Road with the Plan and make the corrections on the spot which I am enabled to do by the enclosures etc being correctly put down on the Plan’. It will take me ten or twelve days longer to examine the parts where I made use of Sir Joseph Banks’s Plans …’. This was a revision as much as a correction: he notes on 14 May ‘I last week found two new churches built and one taken down and Houses too numerous to mention and roads stopped and turned in many places’. Indeed, back in March he had needed to resurvey the Steeping River, where a new cut had been made in 1818 and a large area of marsh reclaimed. It is hardly surprising that he should feel hard done by being required to do this all at his own expense.

That Colby should have sought comments on the proof sheets from the local gentry is not unreasonable. That he should have paid particular attention to a response from Charles Chaplin of Blankney, Esq, is to be expected: Chaplin was the JP who ran Kesteven and everyone knew it. But to pass on to Budgen (on 13 April 1821) Chaplin’s vague dissatisfaction, without knowing what is was that Chaplin objected to and whether those objections were justified, shows poor leadership. It was 25 April before Colby steeled himself to write to Chaplin to ask for the detail of his criticisms, only to be told that Chaplin had himself only been passing on the general impressions of the gentlemen to whom he had sent the proof sheets. However, by 16 May it was possible for Colby to report that some 35 errors had been reported to Chaplin from so eminent a source as Lord Brownlow: roads omitted, including one turnpike, names wrongly spelt, woods omitted or wrongly shown. These stung Budgen into standing up to Colby: several of the omissions complained of were shown on his plans; if he had been sent the proof sheets, he would know whether an oversight of the engraver was responsible. The sheet had been surveyed some time ago and

---

12 What Budgen had used were almost certainly enclosure maps. What he shows on his fair drawing are boundaries of allotments; any further subdivision into fields he does not show. But the allotment boundaries will have sufficed to establish positions of buildings.

13 From medieval times until the 1960s, Lincolnshire was divided into the Parts of Kesteven, the Parts of Lindsey, and the Parts of Holland; for most purposes, all three were independent counties.
'surely I am not required to put in all the Improvements in the County as it must be expected there are hundreds of houses built since the Survey was taken, and Commons enclosed, and new roads made in various places.'

Colby also received comments from a Mr Tunnard of Frampton who offered to arrange for someone from the Ordnance Office to be shown various public plans (meaning, I presume, the property of one of the drainage authorities) and in the mean time sent his private map of the East, West and Wildmore Fens. Now unless we suppose that Tunnard undertook surveys as a hobby, private must be understood simply to mean that the sheet was his own property. The East, West and Wildmore Fens cover a large area as drainage maps go. There had been a detailed survey by Anthony Bower in 1799 which led to the publication of a map by Arrowsmith in 1800, showing the initial ideas (subsequently modified) for draining these fens. Bower made a further plan in 1811 to show proposals for making the principal drains navigable; this was engraved and then re-used in a report for the Bedford Level Corporation issued in 1814. For its clear depiction of the drainage system at the one-inch scale it is a useful little map, but it would hardly be of much assistance in correcting an OSD. Nevertheless, Colby wrote back obsequiously (10 May 1821): ‘The comparison of our map with local surveys doubtless affords the means of ensuring greater accuracy and with that view Lt Robe of the Royal Engineers, now at Wisbeach in Cambridgeshire will shortly wait upon you to benefit by your obliging offer.’

On 18 June 1821, Budgen informed Capt. Mudge that he planned to go home to Frant (just outside Tunbridge Wells) to draw the Gainsborough plan. Mudge warned him on 22 June that Colby ‘would not be pleased’. In his next letter, Budgen explained that it was too late to change his plans: his luggage had gone off already. Besides, ‘I am quite overcome with fatigue and sleep as near as I can where I leave off’. Budgen continued to finish off his plans until the following year but did no more field work thereafter.

Before accusing Colby of high-handed behaviour, even of bullying, in his treatment of his subordinates, we must consider whether we are judging him by the standards of a later age. It is worth returning to the Proprietors of the Witham Navigation. They employed a surveyor and directions to him are normally recorded in their minute book. Nothing like the treatment meted out by Colby occurred. Indeed, taking that company and its predecessor, the Navigation Commissioners, together with the parallel Drainage Commissioners from 1762 to 1818, and the Lincoln West Drainage Commissioners from 1805 to 1816, I can only find one example even approaching Colby’s behaviour. This concerned a plan and profile obtained from a Nottinghamshire surveyor, James Green, in 1792. The levels on this were immediately questioned by local surveyors (indeed, they are patently wrong). Having obtained firm evidence of inaccuracy, the Drainage Commissioners wrote to Green expressing themselves ‘much dissatisfied’ and demanding an accurate plan without further charge – they had already paid his bill.14 Green provided corrections to his levels but they were still judged faulty and the demand for a correct plan was re-iterated. Nothing more appears in the minutes; perhaps Green simply failed to reply. In general, rather than Commissioners berating their surveyors, they showed astonishing tolerance when their own part-time surveyors failed to attend Commissioners’ meetings as directed, or reported that pressure of other work had prevented them from carrying out tasks.15

---

14 LAO LRA 1/1/2, 1 July 1794.
15 Although after Langley Edwards had ‘Disrespectfully neglected the Commissioners of Navigation’ by not attending their meeting of 31 August 1769, he was ‘peremptorily ordered to attend the next’. [TNA RAIL 885/1].
If Colby found himself almost without experienced surveyors, it seems not to have inconvenienced him: survey had run ahead of engraving.\(^\text{16}\) Nor did the loss of expertise prove a problem: whereas surveyors up to this date had been broad generalists akin to those in private practice, from the commencement of the Irish survey, the work was subdivided into discrete tasks that could be carried out by lower-paid employees.\(^\text{17}\) It is intriguing to speculate that such a division of labour was already in Colby’s thoughts in 1821, and that the absence of any constructive proposals to improve the quality of Stevens’s or Budgen’s plans came about because he no longer saw better generalists as the way forward.

So far as OSD 279 was concerned, Colby had another problem besides accuracy. Budgen’s plan, with its allotment boundaries, was too detailed to reduce to the one-inch scale. It would have been possible to leave out those boundaries, but then the plan would look very empty. The answer seems to have been to insert some of the boundaries, selected almost at random. The real problem was that the one-inch scale was unsuited to this sort of country. So perhaps the disquiet that grew into the ‘battle of the scales’ first stirred on the bleak expanses of the East Fen.

Colby’s underlying worry in surveying this area was that the product of his survey would be compared against the existing drainage maps and found wanting. He was right to worry, and Budgen (or rather General Mudge) in one sense had an answer: base the survey on those same drainage maps with updating and the locals will be satisfied. Unfortunately it was an answer that did not offer the sort of consistency between areas that a national map series required. So it came about as Colby had feared, that Colby’s one-inch engraved sheets were compared with the drainage maps and were rejected. Railway promoters might use them\(^\text{18}\) but the locals stuck with the drainage maps. A lithographed version of Budgen’s two-inch OSD might well have proved a success; that was not available, but local surveyors could produce composites from the enclosure awards in the same way (though with less updating). A larger scale made it possible to include the acreage figures from the awards and five inches to the miles (sixteen chains to an inch) was generally adopted. For a long time, manuscript copies were all that was available, but in 1879 a coloured lithographed version was produced.\(^\text{19}\) Sixty-eight years after Colby had been worrying about the outdatedness of Budgen’s OSD, his material attained its final glorious flowering.

\(^{16}\) See the observations on Revision by Oliver in the introductory essay to *The Old Series Ordnance Survey Maps of England & Wales*, Vol VI, Lympne: Margary, 1992, xii.

\(^{17}\) See the observations by Harley and Oliver in the introductory essay to *The Old Series Ordnance Survey Maps of England & Wales*, Vol VII, Lympne: Margary, 1989, xii.

\(^{18}\) *Sheetlines 70*, 26.

\(^{19}\) *Fourth District Map* (four sheets) compiled by James Martin, surveyor, Wainfleet, and lithographed by Martin & Hood, 8 Great Newport Street, London, WC. They covered the Fourth District of the Witham drainage.