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“My great, great grandfather was a leveller
and contourer”

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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.

My great, great grandfather was a 'leveller and contourer'

Bob Shannon¹

In the latter part of 1852 my great, great grandfather John Shannon left the village of St John's Dalry, Kirkcudbrightshire where he was born to work as a labourer with the Ordnance Survey. In the minutes of the St John's Dalry Kirk Session held on 3 April 1853 Catherine Welsh '*confessed that she was with child this being her second offence and accused John Shennan lately residing at St Johns Clauchan now employed as a Labourer in the Royal Company of Sappers and Miners as being her partner in guilt and the father of this child and the former one*'. The first of these children was my great grandfather Thomas Shannon. So did John run from his responsibilities or did he simply want to put Scotland on the map?

It is possible that John had been employed by the Ordnance Survey to assist with levelling work carried out in Kirkcudbrightshire during 1853. The Corps of Royal Sappers and Miners and the Corps of Royal Engineers were responsible to the Board of Ordnance for the mapping of Great Britain and at this time there was a significant increase in activity as a large number of counties, particularly Scottish ones, were requesting the mapping of their areas at six inch to the mile and 1:2500 scales. Mapping of adjoining Dumfriesshire was carried out between 1854 and 1858² and it is possible that John assisted with this work.

The Corps of Royal Sappers and Miners was absorbed into the Corps of Royal Engineers in 1856. In 1855 the Board of Ordnance was abolished and its responsibilities were taken over by the War Office. Mapping had always been under the supervision of the military but they were invariably supported by civilians. For example in the 1846-7 financial year it was intended to employ on the Scottish Survey one Officer, 71 Royal Sappers and Miners, 56 Civilian Assistants and 64 labourers.

John must have acquired a fair bit of surveying knowledge and expertise while working as a labourer because he secured a Civilian Assistant post. A Parliamentary Paper of 1863 provides a return dated 28 March of that year '*showing the names of the several draftsmen, computers, surveyors and others engaged in the Survey in England, Scotland and Ireland*'. It includes John Shannon and states that he was a leveller and contourer being paid 4 shillings and 1 pence a day. His level of service is given as 4 years and 8 months which confirms his promotion to Civilian Assistant in August 1858. There were pay incentives related to productivity and accuracy and it would seem that he was quite good at his job as his rate was higher than some of his colleagues who had been in the OS for much longer. For example his colleague James Murray had a rate of 3s 5d despite having been employed for 11 years and 8 months.

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² Survey dates are given in Richard Oliver, *Ordnance Survey Maps: a concise guide for historians*, second edition, Charles Close Society, 2005.

I had a fair idea as to what an Ordnance Survey leveller and contourer probably did but a document held at the National Archive told me everything I would ever need to know. It is a manuscript entitled *Notes on Levelling and Contouring* written by Captain James, dated 12 March 1867. It covers the technical aspects and also gives an idea as to the type of person John might have been. *'The leveller who may be either a sapper or civil assistant should be a perfectly trustworthy man, a good writer, expert in the use and adjustment of the instruments employed and thoroughly acquainted with the practice of levelling. He is responsible for the accuracy of the work and the payment and discipline of his party and when he is in direct communication with the Division Office he conducts the necessary correspondence. In the field he works the instrument personally and enters the work in the field book while the labourers perform the duties connected with the staff and chain under his direction'*.

The work of Ordnance Survey outside staff was obviously peripatetic and they must have spent all their time living in 'digs' or, in the remoter areas, under canvas. Work would have been undertaken in all weather and would for the most part have been very demanding. The Ordnance Survey Annual Report for 1872 refers to high rainfall which not only hampered work as the surveyors couldn't get on the ground but resulted in many of them suffering ill health from the constant exposure to the inclement weather.

Resources available to the Ordnance Survey were limited and survey teams travelled extensively. There are, however, no extant records to indicate which districts employees were in at any particular time and the only way to follow John's movements is through census entries and the significant events in his life. I know that John was in Liverpool in 1860 as this is where he married Margaret Graham, a girl born in Langholm, Dumfriess and who he possibly met whilst working in that area. John, now 28 and clearly full of himself, gives his profession as 'Gentleman'! At the 1861 census John and Margaret are living at Cannock, Staffordshire and lodging with the Jellymin family. The mapping of Staffordshire was undertaken between 1861 and 1863

Just over a year later John and Margaret are living at Hutton Soil, Penruddock (six miles west of Penrith, Cumberland) where their first child Ellen was born on 10 August 1862. In that year the local paper of the time, the Carlisle Patriot, reported further progress in the mapping of the County. *'The Ordnance Surveyors lately located in the parish of Aikton (near Carlisle) have now established themselves at Thursby upon the church steeple on which they have erected an observatory from which ... a fine prospect can be commanded'*. The Cumberland County Series mapping became available from 1864.

It seems likely that John was separated from his family for long periods. Their next child, James, was born in St John's Dalry on 25 September 1864 but John was not present, his wife providing the information for the registration. The family were, however, together in 1866, at least for a time, when their next child Margaret was born at Kingussie, Inverness-shire. John was present at the birth on 18 November and provided the information for the birth certificate.

Mapping of the northern part of Scotland started in 1864 and the 20 May edition of the Inverness Advertiser reported that *'Inverness is to be the headquarters of the Sappers and Miners engaged upon the Government trigonometrical survey of the North and will in all probability continue so for the next ten years. Balnain House has been taken on lease for office purposes, and the office party, upwards of thirty in number, including civil assistants arrived here from Perth on Monday evening. The field party are at present in the neighbourhood of Braemar. They are working in a north-easterly direction, and in all likelihood be in some of the mountainous district of Inverness-shire before the end of the present year'*.

Chances are that John would have been part of this field party but I would also like to think that he was involved in the survey which established that Ben Nevis and not Ben Macdhuie was the highest mountain in Britain. The Inverness Advertiser reported on 9 August 1864 that *'Ben Macdhuie, which was formerly supposed to be 4390 ft in height, has been set down at nearly 100 ft less than that, viz 4296. Some years since, Ben Macdhuie was supposed to be seventeen feet higher than Ben Nevis ... and was therefore at that time authoritatively stated to be the highest mountain in Britain. Since then, however, the tables have taken a turn, and Ben Nevis would appear to be by far the higher of the two'*.

The outside staff of the Ordnance Survey faced some difficulties in mapping the Highlands, as illustrated in a letter to the Perthshire Constitution & Journal of 17 May 1866 and later partly reprinted in the Inverness Advertiser on 1 June. The letter was written by an Ordnance Survey worker and advises *'We left Perth on Thursday, travelling by railway to Dalwhinnie, and thence by other conveyances to this place – six miles from Laggan. This is the wildest district I have ever traversed during my experience on the survey; it is even more so than the northern counties of England. Except odd houses of the better sort, which are few and far between, the only other habitations are miserable-like huts, occupied by shepherds, and, judging by the smoke oozing out of the doors, such places of abode must be very uncomfortable. In reference to our work, we will commence operations by surveying a line from Laggan Free Church to Fort Augustus, a distance of twenty four miles through as wild a country as you can possibly imagine; and what makes this desolation of the region seem even more desolate than it otherwise would be is the terrible severity of the weather. Snow fell on Thursday the whole day, and the mountains all around are covered in snow. We find considerable difficulty in procuring the common necessaries of life in this romantic district'*.

The next child of John and Margaret, Mary Jane, was born in St John's Dalry on 11 May 1869. Agnes McCulloch, John's sister, witnessed the registration of the birth on 31 May at Dalry Schoolhouse. It may be that John was still working in Inverness-shire but there is no guarantee that he was working permanently in the area. Surveying in the Highlands was often held up because the proprietors of the numerous deer forests objected to the presence of the surveyors between

1 July and 20 October and in addition it was not possible to work there before April or after November owing to the severity of the weather and the snow lying on the mountains. Alternative winter work for the surveyors had to be found elsewhere and the solution devised initially was to bring Argyllshire surveyors down from Oban in a steamer and employ them during the winter in Flintshire and Cheshire. This system was then apparently used to bring a large number of the surveyors from Inverness-shire, Ross-shire and Sutherland to be employed during the winter in Cheshire and Derbyshire but was abandoned after 1874, probably because the remaining work was all in the islands and the same difficulties did not arise.

At the 1871 census John is in Morayshire lodging with the Innes family in the village of Fochabers, and probably now contributing to the Elginshire County series (mapped 1866-71). Meanwhile, his wife Margaret is looking after the family at St John's Dalry. Sometime after this the family moved to Hawick but I cannot correlate this with any Survey work. It may be that John was at work in the islands, where conditions would have made life for his family quite difficult (Skye 1874-7, Outer Hebrides 1876, Orkney and Shetland both 1877-8). Equally his wife may have favoured a less demanding environment as she was probably in poor health. She died at Hawick on 29 March 1875 aged 40 of a heart condition.

By 1877 the field surveys of Scotland had been completed and the whole force of field surveyors in Great Britain was concentrated in England. At the request of the Secretary of State for War the two divisions withdrawn from Scotland were ordered to carry out the survey of the eastern counties of England. The last members of the Ordnance Survey Inverness Headquarters staff, together with their families, left the town on 13 June 1878 by train for Norwich. The Ordnance Survey staff must have made a good impression on the people of Inverness and beyond as the Inverness Advertiser, in reporting the event, commented that during their fifteen year stay in Inverness they '*have gained the esteem and respect of all with whom they came in contact*'. From the newspaper report it is clear that the train journey from Inverness to Norwich was expected to take just over 27 hours.

Having been born and bred in Norwich I am attracted to the idea that my great, great grandfather assisted in the mapping of Norfolk but there is no proof that he worked in East Anglia. The two divisions transferred from Scotland to the eastern counties of England were general survey divisions while John as a leveller and contourer was part of a separate division. He was, however, in Cornwall in 1883 because this is where he married a widow called Isabella Congdon at Truro Parish Church on 5 April. The marriage certificate confirms that John is still a Surveyor and gives his residence as St Austel. (South west of the County surveyed between 1875-88 for the County Series 1:2500).

Survey work was running down in the late 1880s as the basic mapping of the country was completed and a number of civilian assistants were discharged. Certainly by the 1891 census John was retired and living with his wife at

Christchurch, Bristol. John is described as a 'Pensioner from Civil Service'. John died at Bristol in 1903 aged 71.

I have spent most of my life using Ordnance Survey Maps: as a geography student, in my career as a land-use planner and as a keen walker. Little did I realise that my great, great grandfather might have had a hand in earlier versions of some of the maps I was using. Nor did I fully appreciate the dedication shown by the outside Ordnance Survey staff during the second half of the nineteenth century in travelling the length and breadth of the country, often separated from their families, and working in very difficult conditions to map Great Britain.

It would be remiss of me not to mention the help I have received in writing this article from Dr Richard Oliver, Honorary Research Fellow in the History of Cartography at the University of Exeter. When I started researching the life of John Shannon he was quick to answer my questions about the operation of the Ordnance Survey in the second half of the nineteenth century. Now he has not only kindly corrected my draft paper but also provided additional detail.
