

John W. Pringle (c. 1793–1861) and Ordnance Survey geological mapping in Ireland

Patrick N. Wyse Jackson

WYSE JACKSON, P. N. 1997. John W. Pringle (c. 1793–1861) and Ordnance Survey geological mapping in Ireland. *Proceedings of the Geologists' Association*, **108**, 153–156. In 1825 topographic mapping in Ireland commenced under the direction of Thomas Colby, who attempted to instigate a geological survey at the same time. John W. Pringle, a fellow Royal Engineer, took charge of the geological activities in 1826, but soon discovered that the surveyors, working in the northern part of the country, and who were not trained geologists, were ill-equipped for the task. He produced an instruction manual for their use, but the geological programme was terminated in 1828 before many tangible results, other than some crude cross-sections, were produced. The programme was resurrected under Joseph Ellison Portlock and ran until 1840. The civilian-based Geological Survey of Ireland was established in 1845 and completed the primary geological mapping of Ireland in 1890.

Department of Geology, Trinity College, Dublin 2, Ireland.

1. INTRODUCTION

In a recent paper tracing the relationship between the army and some of the founding fathers of British geology, Rose (1996) cited as an example the early development of government geological mapping in Ireland by Royal Engineer officers. He noted that the work was begun under Trigonometrical (Ordnance) Survey auspices by Captain John W. Pringle on the initiative of Lieutenant-Colonel Thomas F. Colby; that it was re-activated later by Captain Joseph Ellison Portlock, and that when the Geological Survey of Ireland was founded in 1845 as a civilian organization its first Local Director was (briefly) Captain H. James. The work of Portlock and James is relatively well known, but that of Pringle is not. Publication of an official history of the Geological Survey of Ireland (Herries Davies, 1995) extending an earlier account (Herries Davies, 1983) whilst Rose's paper was in press makes it opportune to document Pringle's role in the ancestry of the Irish survey more fully here – and to note that it is as John Watson Pringle (Herries Davies, 1983, p. 88; 1995, p. 8) rather than John William Pringle (Rose, 1996, p. 131) that he is known in Ireland, and in *The Army List* from at least 1843 to 1860.

2. J. W. PRINGLE AND HIS WORK IN IRELAND

In 1825 the Ordnance Survey began topographic mapping in Ireland at the scale of six inches to the mile under the direction of Thomas Colby. In order to advance his interest in geology Colby directed his surveyors to collect rock samples whilst mapping, and to record on maps the location from where they had been collected. These specimens were then to be sent to Dublin for examination. The ultimate aim

of this work, which was secondary to the main task of topographic mapping, was to produce geological maps.

This section of the Ordnance Survey was to be headed by a 'Superintendent of the Geological Survey of Ireland', a position offered by Colby to, and accepted by, John W. Pringle (c. 1793–1861), who started geological duties on November 14, 1826. Pringle, who had studied under Friedrich Mohs at the Freiberg School of Mines (Portlock, 1869), and who was highly regarded as a mineralogist, had been working in Ireland with the Ordnance Survey from June of that year.

For over a year he was continually engaged in baseline surveys and was unable to pay much attention to geology. In December 1827 he visited surveyors in the basaltic region of northeast County Antrim, and there he discovered that the men knew little geology and collected specimens in a way that proved them to be useless for the purpose for which they had been acquired. He ordered his men to recollect material from the poorly-collected areas, a task that some of them openly questioned, reasoning that determining the underlying geology was a waste of time. In due course Colby asked Pringle to cover the ground himself.

Soon after this event Pringle published a small seventy-page instruction manual, *Directions for geological and mineralogical observations* (Pringle, 1827), that outlined the methods that should be used by the surveyors in collecting geological information (Fig. 1). The volume was initially hand-written (not by Pringle) and from this master copy 50 copies were lithographed at the Tower of London and subsequently distributed to each surveyor in Ireland. Pringle gave detailed information of the required size for specimens and on how they should be wrapped, and on what observations (dip and strike of strata etc.) should be collected and recorded on maps. The volume also contains

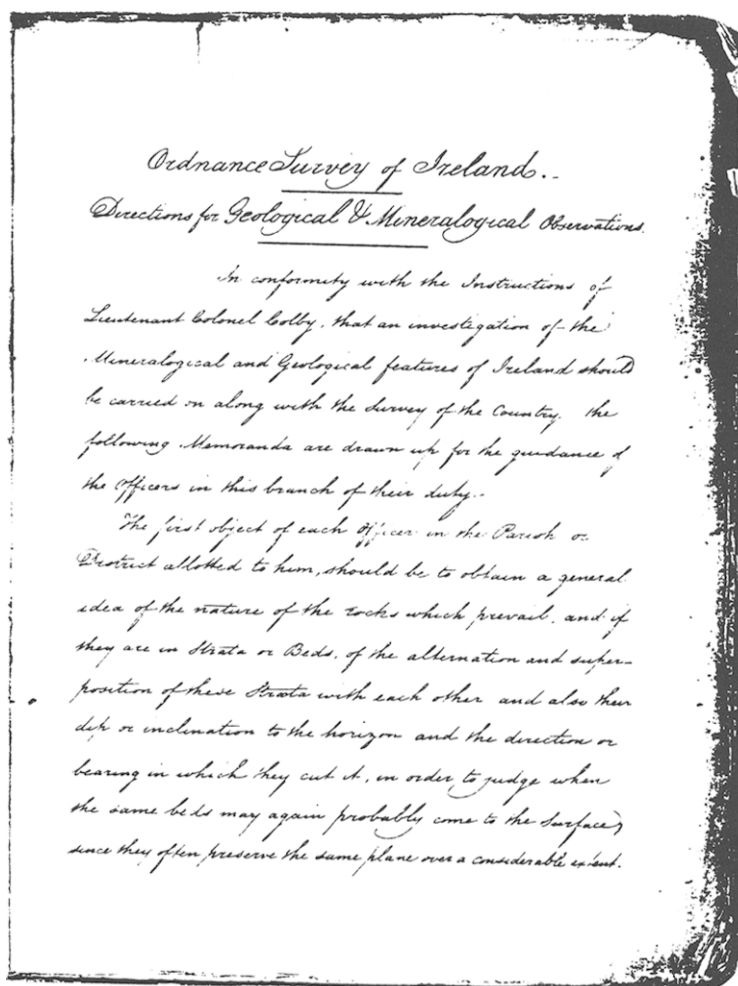


Fig. 1. First page of J. W. Pringle's *Directions for geological and mineralogical observations*. London (1827).

an interesting hand-coloured sketch map of the geology of southern England. The only known copy of Pringle's manual is now in the archives of the Geological Survey of Ireland. It is signed by him, and liberally annotated by J. E. Portlock, a fellow Royal Engineer and geologist.

Other initiatives aimed at enhancing the geological knowledge of the surveyors included the distribution of sets of rocks and minerals, German and Cornish, as well as the purchase of the *Transactions of the Geological Society of London* and some other geological texts for their use.

Soon afterwards Pringle's men were asked to produce, in addition to geological plans of each parish, two geological cross-sections through the area, in a north-south and east-west direction. Two of these crude, and early examples of the genre survive in Dublin (Herries Davies, 1974), and show sections through parts of County Londonderry where Tertiary basalts overlie Mesozoic rocks.

Colby's attempt to establish a geological survey was

commendable, but largely doomed to failure. Not one published geological map emanated from offices of the Ordnance Survey during Pringle's period in charge, although it was his and Colby's intention to publish and sell such maps produced on a parish scale. Apart from the cross-sections mentioned above there survives a map of the parish of Aghanloo, County Londonderry dating from 1828 on which coloured washes have been added that indicate the distribution of various lithologies, and on which the localities from which the samples were collected have been marked.

In July 1828 a fellow Royal Engineer, Sir James Carmichael Smyth, was sent from England charged with the task of examining the workings of Colby's survey. It is coincidental that Carmichael Smyth was Pringle's superior officer at the Battle of Waterloo (Dalton, 1890, 1904). He was particularly concerned that valuable time and indeed money was being spent on a geological survey which had

not received official sanction. Pringle stated that geological inquiries were completed for three-quarters of those parishes already surveyed topographically, and that specimens, plans and sections were in Dublin. He also made the astonishing claim that geological coverage for the whole country could be completed by 1834 – a claim made all the more ludicrous in that only five of Pringle's men had by then been trained in geological surveying. One of these was Portlock, whose geological prowess was not in question, while the other four had limited geological experience. Carmichael Smyth rapidly deduced that the geological survey was largely ill-conceived and ill-run, and on 1 September 1828 directed that all geological surveying should stop immediately. Pringle's Irish geological sojourn came abruptly to an end after less than two years.

Thomas Colby in 1829 managed to get permission to recommence the work, thus making another attempt at geological surveying; but this enterprise had little success and few tangible results. He appointed Portlock to oversee the geological surveying, and it was he who was responsible for the geological map and narrative that was published by Colby in 1837 as part of the Ordnance Survey's memoir on the parish of Templemore in County Londonderry. In the same year Portlock established a geological office in Belfast and engaged a number of civilian geologists as part of his team. The civilians included Thomas Oldham (1816–1878), who later became the second Professor of Geology at Trinity College Dublin succeeding John Phillips (1800–1874), who held the Chair for barely a year (Wyse Jackson, 1994), and subsequently Local Director of the Geological Survey of Ireland and the Superintendent of the Geological Survey of India; also George Victor Du Noyer (1817–1869) a noted artist. Their work culminated in the magnificent *Report on the Geology of the County of Londonderry* (Portlock, 1843), but on account of economic stringencies Portlock's team was disbanded in 1840. Many of the specimens collected by Portlock and his team are now to be found in the British Geological Survey collections at Keyworth, Nottinghamshire and in various Irish institutions including the Ulster Museum, Trinity College Dublin, University College Galway, and the Geological Survey of Ireland (Tunnicliff, 1980; Harper & Parkes, 1996).

It was not until the establishment of the Geological Survey of Ireland in 1845 that geological mapping was placed on a firm footing and a rational and well-conceived

programme commenced. It was to take this survey forty-five years and a huge capital outlay to complete the primary geological mapping of the country – considerably longer than the estimate made by Pringle of a completion date of 1834 and cost of £5500 (Herries Davies, 1974). It would appear that John W. Pringle underestimated the ability of his surveyors, the difficulty of the Irish terrain, and the depth of the Treasury's pockets during his short but eventful career in Ireland.

3. POSTSCRIPT

Just as there is a closer relationship between the army and some of the founding fathers of British geology than is commonly realized (Rose, 1996, p. 129), so there is a closer relationship between geological work in Ireland and the development of major interpretative ideas in earth science than is generally appreciated. The resolution of the eighteenth century debate on the nature and origin of various igneous rocks, including basalt, was partially reached through work carried out by several geologists in northeast Ireland (Herries Davies, 1981, 1985; Wyse Jackson, in press). Moreover, Patrick Ganly publishing in 1856 showed how sedimentary structures could be used to determine way-up in rocks (Archer, 1980; Wyse Jackson, 1995) and Joseph Beete Jukes' work in 1862 on the river drainage of southern Ireland was highly influential in shaping the thoughts of later geologists and geomorphologists on river drainage and its effects on the landscape in general (Herries Davies, 1962). Geological work in Ireland extends back over 300 years. Its significance is being increasingly documented by local historians for the benefit of the international scientific community (see Wyse Jackson (in press) for a comprehensive literature list).

ACKNOWLEDGEMENT

The summary of geological work by J.W. Pringle given above is largely derived from the publications of Gordon Herries Davies, with his kind permission. See Herries Davies (1983, p. 123, notes 7 to 27) for references to archival material. I thank Ted Rose for his constructive comments as a referee of this paper. Figure 1 is reproduced with the kind permission of the Director of the Geological Survey of Ireland, who is, Pedar McArdle.

REFERENCES

- ARCHER, J. B. 1980. Patrick Ganly: geologist. *Irish Naturalists' Journal*, **20**, 142–148.
- COLBY, T. F. 1837. *Memoir of the city and north western liberties of Londonderry. Parish of Templemore. Ordnance Survey of Londonderry. Volume the first*. Dublin.
- DALTON, C. 1890. *The Waterloo Roll Call*. Clowes and Sons, London.
- 1904. *The Waterloo Roll Call with biographical notes and anecdotes* (2nd edition). Eyre & Spottiswoode, London.
- HARPER, D. A. T. & PARKES, M. A. 1996. Geological Survey donations to the geological museum in Queen's College Galway: 19th century inter-institutional collaboration in Ireland. *The Geological Curator*, **6**, 233–236.
- [HERRIES] DAVIES, G. L. 1962. Joseph Beete Jukes and the rivers of southern Ireland – a century's retrospective. *Irish Geography*, **4**, 221–233.
- [—] — 1974. First official geological survey in the British Isles. *Nature*, **249**, 407.
- [—] — 1981. The Neptunian and Plutonic Theories. In (Smith, D. G.; ed.) *Cambridge Encyclopaedia of Earth Sciences*. Cambridge University Press, Cambridge.

- [—] — 1983. *Sheets of Many Colours: the mapping of Ireland's rocks 1750–1890*. Royal Dublin Society, Dublin.
- [—] — 1985. Astronomy, Geology, Meteorology. In (O Raifeartaigh, T.; ed.) *The Royal Irish Academy: a Bicentennial History 1785–1985*. Royal Irish Academy, Dublin.
- [—] — 1995. *North from the Hook: 150 years of the Geological Survey of Ireland*. Geological Survey of Ireland, Dublin.
- PORTLOCK, J. E. 1843. *Report on the geology of the County of Londonderry, and parts of Tyrone and Fermanagh*. A. Milliken, Hodges & Smyth, Dublin.
- 1869. *Memoir of the life of Major General Colby*. London.
- PRINGLE, J. W. 1827. *Directions for geological and mineralogical observations*. London.
- ROSE, E. P. F. 1996. Geologists and the army in nineteenth century Britain: a scientific and educational symbiosis? *Proceedings of the Geologists' Association*, **107**, 129–142.
- TUNNICLIFF, S. P. 1980. *A catalogue of the Lower Palaeozoic fossils in the collection of Major General J. E. Portlock, R.E., LL.D., F.R.S., F.G.S. &c.* Ulster Museum, Belfast.
- WYSE JACKSON, P. N. (ed.). 1994. *In Marble Halls: geology in Trinity College, Dublin*. Department of Geology, Trinity College, Dublin.
- — 1995. Patrick Ganly (1809–1899) and the discovery of evidence of way-up in rocks on the Dingle Peninsula. *The Kerry Magazine*, **7**, 8–9.
- — (in press). Fluctuations in fortunes: geology in Ireland 1694–1994. In (Wilson Foster, J. & Chesney, H. G. C.; eds) *Nature in Ireland*. Lilliput Press, Dublin.

Received 15 October 1996; revised typescript accepted 28 January 1997