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"Making history in County Donegal"

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Making history in County Donegal

Karen Rann

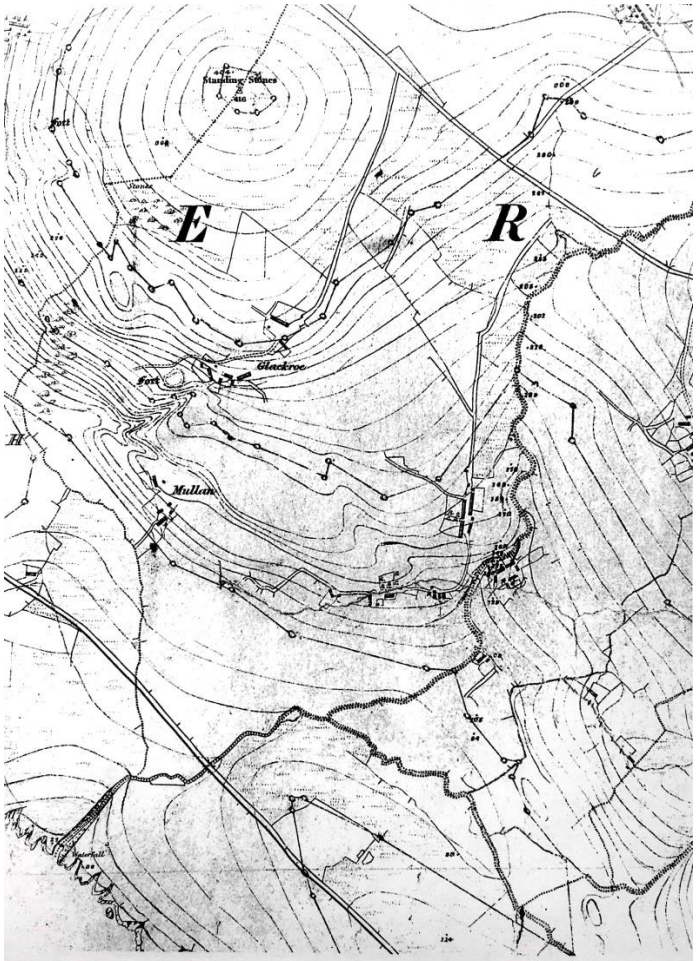
On the west coast of the Inishowen Peninsula in County Donegal lies a small hill that played a huge role in changing how relief was portrayed on Ordnance Survey maps. Apart from the megalithic tomb on Mullagharry's summit, it is unremarkable. Even locals struggle to spot it amongst the rolling hills of the parish of Desertegny, tucked between the Urris Hills to the north and Aghaweel Hill to the east. Yet it was here that the Ordnance Survey first experimented with diagrammatic contour lines – instead of pictorially sketching hills – for their maps.

Figure 1. Mullagharry viewed from the flanks of Aghaweel Hill - Lough Swilly in the distance. (Author)

It is hard to fathom why they began here (on sheet 18). Under Colby's command a 'top down' approach was taken to the survey of Ireland. Sheet number one, of both the six and one-inch series of Ireland, began with Malin Head at the tip of the Inishowen Peninsula. This northernmost point could be construed as the opening line for a 'once upon a time' story of Ireland. So why not begin experiments with contouring there? Evidence that the trial started lower down the Peninsula is given in *A Paper Landscape* by JH Andrews. Depicted in plate VI of the book is a detail from this sheet titled "The earliest Irish contours. 6–inch map, Donegal (Inishowen), part of sheet 18, engraved 1836, published 1837, with MS. contours added in 1839". The hill towards the top of the plate is Mullagharry though it remained

nameless on both the first and second editions of the six-inch map series. On the first edition of sheet 18, the Megalithic Tomb at its summit is described as Standing Stones.

Encircling the wording – and a trig point marked 416 – an instrumental contour line was added to the printed map. Rippling outwards from this, the eye tracks another five contours ringing the hill. They lend Mullagharry's flanks a bull's eye appearance, and almost inevitably, this hill became my focus for field research into the emergence of contour lines on maps.[1]



VI. The earliest Irish contours. 6-inch map, Donegal (Inishowen), part of sheet 18, engraved 1836, published 1837, with MS. contours added in 1839

Figure 2. "VI. The earliest Irish contours. 6–inch map, Donegal (Inishowen), part of sheet 18, engraved 1836, published 1837, with MS. contours added in 1839". (John H. Andrews, A Paper Landscape: The Ordnance Survey in Nineteenth-Century Ireland*, reprint, 2006).*

[1] Karen Rann, *Horizontal Hills: A Creative Historical Geography of the Emergence of Contour Lines in Nineteenth-Century Britain and Ireland* (PhD thesis, Queen's University Belfast, 2022). Just west of Mullagharry lies Fort Dunree where the art organisation Artlink is based. Since completing the PhD I have been developing the arts project *Drawing with Altitude* with them (with Arts Council Ireland funding).

My fascination with contour lines began in 2013 while I was artist in residence with the National Trust for Scotland on the Isle of Arran. One day, standing on the flanks of Goat Fell with an old pictorial map in one hand, and a modern contoured one in the other, the thought struck me: how had contour lines come into being? Why had mapmakers switched from easy-to-read pictorial hills to abstract lines? As idle curiosity turned into obsession, I quested for answers. The dichotomy between subjective pictoriality and objective abstraction (and the question of how best to flatten hills onto paper maps) is all engrossing. While pictorially sketched hills can look beautiful, contour lines present information on the heights, gradients, and positions of hills more succinctly. In a nutshell, sketched hills are easier on the eye, and contours more precise (potentially). In an era when the collection of statistics (think of Colby's Memoir project in Ireland) and diagrammatic formats for their presentation were increasing in popularity, diagrammatic contour lines came to be seen as cutting-edge mapping technology.

By the 1830s, the portability and precision of surveying equipment had improved enough for contouring with instruments to become a viable alternative/aid/addition to sketching the hills.[2] Encouraged by his superior Thomas A Larcom, in 1839, the OS's head of hill drawing in Ireland, George Bennett, tasked his sketchers with a contouring trial. As well as his drawing board, the hill sketcher would now have "three labourers under him; two acted as staff holders and chainmen, and the third carried the instrument [theodolite], from station to station, and sheltered it from the wind with a large umbrella".[3] The sketcher plotted the contour lines directly onto a six-inch printed outline map.

Circling the Standing Stones at the summit of Mullagharry, at 400ft, the positions of the staffs were marked off in six places. - Between each, the contour line was drawn ruler straight, creating a polygonal, or "unfortunate angular effect".[4] 100ft lower down the hill, another *instrumentally* measured contour was drawn onto the map.

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[2] WA Seymour ed., *A History of the Ordnance Survey,* 1980, 171–3. This article is written from an artist's perspective, I hope those among you who trained as surveyors will overlook the 'artistic licence' taken with some of my descriptions of methods and practices.

[3] Master-General and Board of Ordnance, *Abstracts of Principal Lines of Spirit Levelling in Ireland, carried on during the years 1839 to 1843, under the direction of the Late Major-General Colby* (London: G. E. Eyre & W. Spottiswoode, 1855), xvi.

[4] JH Andrews, *A Paper Landscape: The Ordnance Survey in Nineteenth-Century Ireland* reprint (Dublin: Four Courts Press, 2006), 118. This jerky style was abandoned for later contour maps.

Figure 3. The Megalithic Tomb at the summit of Mullaghary hill was marked on the first edition (published 1837) as Standing Stones. On the second (1905) edition the wording was altered to Laghty (possibly anglicised from leachtaí – memorial stones on burial mound).

Between these two polygons, the hill sketcher then added another nine curving contours by eye. These rough estimations of altitude (that came to be called *interpolated* contours) appeared as finer, dotted lines. Drawing these contours was neither complicated nor unusual for the hill sketcher. They were already using form-lines to aid drawing hills in the horizontal (hachure) style and considered their sketched lines as something akin to contours. In Ireland, they had been trained by master draftsman Robert Kearsley Dawson who, in 1833, stated:

"all hands have been engaged more or less in drawing contours".[5] Both RK Dawson and his father (and instructor) Robert Dawson were flexible in their definitions of terms: hachures were also described as form-lines, and both these were sporadically described as contour lines. On sheet 18, the sketched contours, drawn at ten-foot intervals of elevation between the instrumental lines, demonstrate a practiced fluidity, though the uniformity of their curves suggests the hill sketcher may have desired to standardise the hill rather than register its irregularities (its individuality). This thought struck me whilst making two models of the hill, one based on the hill sketcher's contours, the second on current OSI lines.

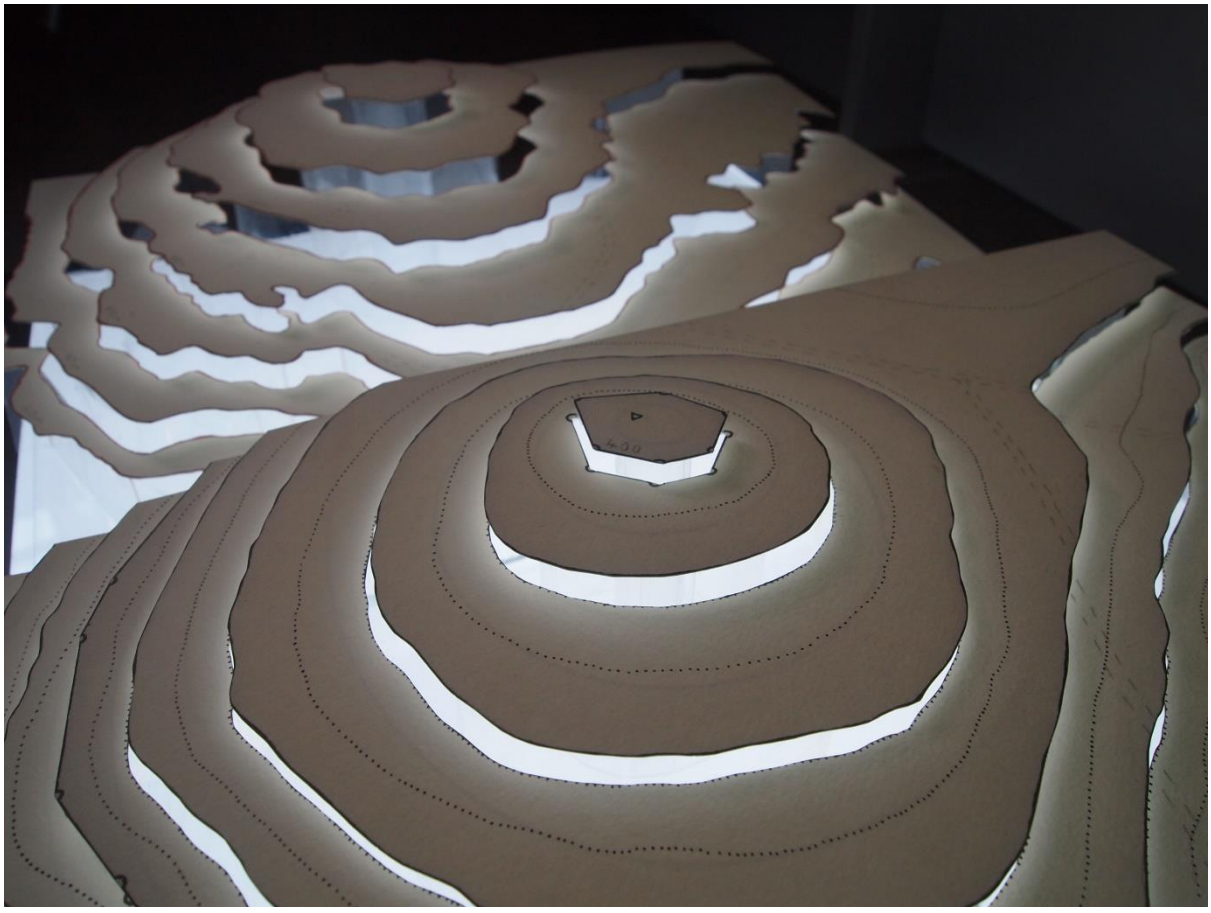

Figure 4. Two A3 contour models of Mullagharry. The foremost is based on plate VI in A Paper Landscape (circa 1839), the second model is derived from the contours on OSI map 3, discovery series, 1:50,000, 2019.

The contouring trial in Desertegny was deemed a success and "specimens of the Donegal work, … were sent to Chatham to be used in [training]… engineers." This endorsement, appears to be the only record of the first OS experiment in contours.[6] Shortly afterwards,

[5] Andrews, *A Paper Landscape*, 114. Quote from an OS Progress Report, hill department, 14 January 1833.

[6] Andrews, *A Paper Landscape*, 115, fn 3.

regular contouring began (again on the Inishowen Peninsula), and by 1841, hill-sketching was virtually abandoned, replaced by contouring with instruments and sketching intervening (interpolated) lines by eye.[7] Hill sketchers were highly skilled, and expensive to employ, and on those grounds, Larcom decided contouring work should be handed over to a cheaper workforce and "a body of sappers and mechanical assistants, [were trained to] run the contours on six-inch sheets".[8]

Although the OS began contouring in Ireland, the practice swiftly spread to northern England and Scotland and the first sheet to have contours printed on it was in Lancashire. Sadly, those initial contours, drawn around the wee hill of Mullagharry – the first ever drawn by the OS in the field – were never printed.[9]

Acknowledgments
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Permission to reproduce plate VI (initially in my thesis) was given courtesy of John H Andrews and Four Courts Press. All other images are my own.
With thanks also to David Fairbairn who was kind enough to read through and comment on the draft text.

[7] Andrews, *A Paper Landscape*, 115.

[8] Thomas Larcom in *Report of the Commissioners Appointed to Inquire into the Facts relating to the Ordnance Memoir of Ireland, together with the minutes of evidence…* (London: Her Majesty's Stationary Office, 1843), 61–62.

[9] Neither the first edition of Sheet 18, nor the second (printed in 1905) included contour lines for the parish of Desertegny.